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Gleanings in Bee Culture



AN APIARY IN THE NETHERLANDS.

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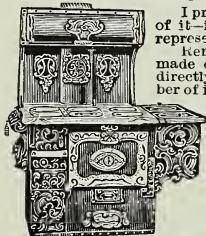
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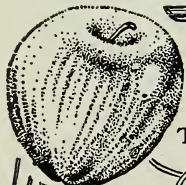
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Honey Markets.

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchant. When sales are made by commission merchants, the usual commission (from five to ten per cent), cartage, and freight will be deducted, and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage, and other charges, are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

EASTERN GRADING-RULES FOR COMB HONEY.

FANCY.—All sections well filled, combs straight, firmly attached to all four sides, the combs unsoiled by travel-stain or otherwise; all the cells sealed except an occasional one, the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled; the outside surface of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

NEW COMB-HONEY GRADING-RULES ADOPTED BY THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

No. 1 WHITE.—Sections to be well filled and evenly capped except the outside row, next to the wood; honey white or slightly amber, comb and cappings white, and not projecting beyond the wood; wood to be well cleaned; cases of separated honey to average 21 pounds net per case of 24 sections, no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 1 LIGHT AMBER.—Sections to be well filled and evenly capped, except the outside row, next to the wood; honey white or light amber; comb and cappings from white to off color, but not dark; comb not projecting beyond the wood; wood to be well cleaned.

Cases of separated honey to average 21 pounds net per case of 24 sections; no section in this grade to weigh less than 13½ ounces.

Cases of half-separated honey to average not less than 22 pounds net per case of 24 sections.

Cases of unseparated honey to average not less than 23 pounds net per case of 24 sections.

No. 2.—This includes all white honey, and amber honey not included in the above grades; sections to be fairly well filled and capped, no more than 25 uncapped cells, exclusive of outside row, permitted in this grade; wood to be well cleaned, no section in this grade to weigh less than 12 ounces.

Cases of separated honey to average not less than 19 pounds net.

Cases of half-separated honey to average not less than 20 lbs. net per case of 24 sections.

Cases of unseparated honey to average not less than 21 lbs. net per case of 24 sections.

SAN FRANCISCO.—Honey is still being shipped to the markets, but several of the producing districts are now about cleaned out. There is a fair demand in the East, and a liberal movement in that direction, but the local market is rather quiet. The growers are getting from 5 to 6 cts. for average lots of extracted. Sales in this market are made at the following figures: Water-white comb, 16 to 17; white, 15; water-white, extracted, 8 to 8½; light amber, 7 to 7½; dark amber, 5½ to 5¾; candied, 5½ to 5¾. —*Pacific Rural Press*, Aug. 25.

INDIANAPOLIS.—The demand for the best grades of honey is good. Producers are offering fancy white comb honey at 12½; No. 1 white at 12; white-clover extracted, in five-gallon cans, at 7; very little demand for amber at any price. Many bee-keepers seem to be holding their honey for higher prices. Beeswax is steady at 28 cts. cash, or 30 in exchange for merchandise.

Aug. 18. WALTER S. POWDER, Indianapolis.

NEW YORK.—The new crop of York State comb honey is now beginning to arrive in small quantities, and the quality appears to be very fine, especially choice white stock. While our market has not opened up as yet, and will not before about the first week in September, prices are unsettled and uncertain. We are having some demand for fancy and No. 1 white at prices ranging from 13 to 15, according to quality and style of package. No new buckwheat is on the market as yet, but we are informed that the crop will probably be quite large. A great many bee-keepers seem to think that comb honey ought to sell at the same price as last year and before, not taking into consideration the fact that comb is a luxury and not a necessity, nor do they seem to take into consideration the general depression in business. We do not expect as good a demand as last year, nor do we think that last year's prices can be realized.

Arrivals of extracted honey have been quite free from the West Indies and the South, and the demand is fair. Prices obtained we consider full market value. We quote average grades from 58 to 65 cts. per gallon; fancy grades, 70 to 75. No new crops from near by are on the market yet, nor California. We have several cans now in transit, due here the first of September. We quote California sage at 9; orange, 8 to 8½; light amber, 7½ to 8.

Arrivals of beeswax are quite heavy, and the market shows a downward tendency. Prices are likely to go still lower. We quote 28 to 30.

HILDRETH & SEGELKIN,
New York.

SCHENECTADY.—No new comb honey on our market yet, and but little demand, as many dealers carried over some stock which they are anxious to work off before buying the new crop. However, it is well to have some on hand for first customers.

CHAS. MACCULLOCH,
Schenectady, N. Y.

Aug. 25.

CINCINNATI.—Extracted honey, for which there is a fair demand but not a high price, is selling, amber, in barrels, at 5 to 5½; white clover brings ½ in barrels, 8 in cans; comb honey, for which there is practically no demand, is selling at 14. Beeswax is selling slowly at 33. These are our selling prices.

Aug. 24. C. H. W. WEBER, Cincinnati, O.

KANSAS CITY.—The demand for comb honey is increasing, and the demand exceeds the supply. No. 1 honey is selling at \$3.25; light amber, \$3.00; dark amber, \$2.75; extracted, 7½ to 8.

Aug. 21. C. C. CLEMONS & Co.,
Kansas City, Mo.

BOSTON.—We quote: Fancy white-clover comb honey, 16 to 17; No. 1 white comb, 15 to 16; extracted white honey, 9 to 10; extracted light amber, 7 to 8; same in barrels, 6 to 6½. Beeswax, 30.

Aug. 20. BLAKE-LEE CO.,
Boston, Mass.

DENVER.—The crop in Northern Colorado is almost a failure. There will be but little more than what the home market requires in this section. We quote No. 1 white comb honey, in 24-section cases, at \$3.15 per case; No. 1 light amber, \$3.00 per case; No. 2, \$2.85 per case; strained and amber extracted, 6½ to 7½; light amber, 7½ to 8½; white extracted, 8½. We pay 24 cts. for clear yellow beeswax delivered here.

THE COLORADO HONEY-PRODUCERS' ASS'N.,
Denver, Aug. 25. F. Rauchfuss, Manager.

BUFFALO.—New honey is arriving now quite freely. Quality is very good. Buyers seem slow to buy. They are holding off for lower prices. In order to get it to moving, prices must go lower. No. 1 to fancy white-clover comb, 14 to 15; No. 2 ditto, 10 to 12; No. 3 ditto, 9 to 10; white-clover extracted, 7 to 8; ditto amber, 6 to 6½. No dark honey is arriving. Beeswax, 28 to 30.

Aug. 11. W. C. TOWNSEND.

LIVERPOOL.—The honey market here is steady with a fair demand and a good export inquiry. A better demand is expected next month and October. Stocks in the market are small, chiefly old crop. Values to-day are as follows: Chilean, 4½ to 6½; Peruvian, 3½ to 5½; California, 8½ to 10½; Jamaican, 4 to 5½; Haytian, 5½ to 6½. No change in beeswax.

Aug. 19. TAYLOR & Co., 7 Tithebarn St.

A FULL LINE of Bee-keepers' Supplies. My patent Section-machine at half-price. A new queen-nursery, and queen-rearing outfit. Queens from imported Italians, Caucasians, Carniolans, and Adiel queens. Send for catalog and price list. *181 Newton Ave. N.* **Chas. Mondeng, Minneapolis, Minn.**

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The Fred W. Muth Co.

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In addition, it is of very superior quality; so much so that it was awarded the gold medal, in competition with other honeys, at the Jamestown Exposition. It has a flavor all its own—a flavor that smacks of the wild red raspberry of the woods.

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It costs more to produce such honey, there is not so much of it,

and it is worth more than the ordinary honey; just as big Northern Spy apples, streaked with crimson and filled with juicy spiciness, are worth more than ordinary fruit.

As a finishing touch the honey is put up in bright new 60-lb. tin cans, securely boxed, and the boxes bound with iron so that they will bear shipment; in fact, I will guarantee safe arrival in perfect condition.

For a single 60-lb. can the price is \$6.25; for two cans in a case (120 pounds) the price is \$12.00 a case, regardless of the number of cases that are taken.

If you are not acquainted with this honey, send me ten cents and I'll mail you a generous sample, and the ten cents may apply on the first order that you send.

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GLEANINGS IN BEE CULTURE

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A GREAT OFFER.

It is not often that readers of periodical literature are given so liberal an offer as we have presented on page 1038 of this issue. If you desire to get something nice to read during the long winter evenings we suggest that you give this fine offer your earnest consideration.

A FAVORITE RANGE.

In nothing do American housekeepers show greater discrimination than in their choice of a kitchen range. Every woman has pronounced ideas on the subject, and men-folks are not allowed to say a word one way or the other. It is purely a woman's prerogative to select the cooking-range, and she is generally equal to the emergency. She has an ideal in her mind to which a range for home use must be equal, and perhaps a little more for good luck. It must be dependable, economical of fuel, a good cooker, a good baker, and, above all, it must be durable. It is on this latter point that so many ranges fail; and as it takes years to find this out, housekeepers are obliged to select a range with a reputation. Many ranges do very well for a year or two, when they give out entirely, and the owner has to buy a new one, for to repair the old one would be a waste of money.

Young housekeepers have to be particularly careful on this point, as some kinds of iron will last three or four times as long as another kind, though both look alike to the inexperienced.

For these reasons our lady friends, when about to purchase a range, generally visit their acquaintances to discuss the merits and demerits of their cooking apparatus, endeavoring to discover which range is best.

One of the best ranges on the market, if not the best, is the Majestic, advertised on another page of this journal. It has been before the public for a number of years, so that its reputation is fully established. The body is made of charcoal iron, which insures durability; in fact, the makers say it will outlast three ordinary cooking-stoves. It is a fine baker at all times. It saves fuel, because it is so constructed as to conserve all its heat. It has a fifteen-gallon reservoir which supplies boiling hot water.

It has had an immense sale, and there are actually hundreds of thousands of Majestics in use throughout the country. In nearly every county of forty States the Majestic ranges are on sale, and this alone indicates its great popularity with all classes and conditions of American women. Further information can be obtained from the makers, The Majestic Manufacturing Co., St. Louis, Mo.

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A Little Dose of Reason.

By the Bee Crank.

Lord Avebury is a famous British scientist and beeenthusiast. In addressing a recent gathering of French and English bee-men in London, the daily papers report that he said that his observations had led him to believe that the movements of the bee are not automatic, but they had what Darwin called "a little dose of reason." He called attention to the fact that they have five eyes, two of which are constructed on a different plane from the other three, and he believes that they may have certain senses unknown to man, including the power of seeing rays of light invisible to us.

All this places a bee on a pedestal beside man, who has a larger dose of reason, and who—if he is a real bee-man—proves it by ordering his supplies where he is always sure of getting bright, fresh, clean stock,



and where he gets it before he has begun to expect it, just as Mr. Reynolds did. Under date of July 21, Mr. Clarence Reynolds, of Center, Indiana, writes:

My order was received in good condition. I want to thank you for your promptness, for the goods arrived two days after I sent the order—sooner than I thought it possible for the goods to come.

I carry a full line of Root's goods, and sell at factory prices.

During this month I am offering a discount of seven per cent for cash orders for goods for next season's use. In October the discount will be six per cent. I believe any bee-keeper can benefit himself by taking advantage of this liberal offer.

I buy beeswax and pay highest market prices, cash or trade. When I say cash I mean that I remit the day your wax arrives.

Catalog free.

Walter S. Pouder,

513-515 Massachusetts Avenue, Indianapolis, Ind.

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CONNECTICUT STATE FAIR.

The Connecticut Bee-keepers' Association will give an exhibit of bees and bee products, in connection with the State fair at Berlin, Sept. 15—18. An entrance fee of \$1.00 will entitle the exhibitor to compete for all premiums in this list.

Italian bees with queen	\$5.00	\$3.00	\$2.00
Carniolan bees with queen	5.00	3.00	2.00
Black bees with queen	5.00	3.00	2.00

The largest and best exhibit to govern the above.

The above exhibit to be in single-comb observatory hives.

All queens must be shown with their own progeny.

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Best 12 sections of amber comb honey	3.00	2.00	1.00
Best and largest display of comb honey	5.00	3.00	2.00
Best 12 jars of light extracted honey	3.00	2.00	1.00
Best 12 jars of amber extracted honey	3.00	2.00	1.00
Largest and best display of extr'd honey	3.00	2.00	1.00

Largest and most attractive display of bees, queens, honey, and bee-appliances	8.00	5.00	3.00
Demonstration of live bees	15.00	10.00	5.00

All meritorious exhibits pertaining to bees, not herein provided for, will receive special premiums. Entries close Sept. 8. Address

GEORGE H. YALE,
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A HANDY TOOL.

If you are interested in potato culture, as a good many of GLEANINGS' readers are, you will doubtless be interested in the advertisement of The Potato Implement Co., of Traverse City, Mich. We believe their digger is a very useful invention in connection with what is usually a very laborious job—digging potatoes by hand. The makers claim for it that it does not scar or crush the potatoes, and yet it finds every tuber in the row. The machine diggers are likely to fail in both particulars, so that there is economy in using the Acme hand digger. We believe the manufacturers are sincere in making the offer to refund promptly the money to all dissatisfied customers. They are certainly reliable or their advertisement would not appear here. Weighing the pros and cons of the question, we certainly think that any one of our readers will be perfectly safe in ordering one of these tools if he has any potatoes to dig.

MONEY IN SMALL FRUITS.

We are pleased to have again in our columns the usual fall announcement of W. N. Scarff, of New Carlisle, Ohio. He is one of the old reliable kind, and we are glad to see him successful. Mr. Scarff is himself a practical bee-keeper, and a farmer on a large scale, using 800 acres of valuable Ohio soil. He appeals very strongly to the small cultivator who desires to secure a large return from a small piece of land. To do this he recommends the culture of berries, which yield heavily and give large returns in money, but require much attention which the average farmer can not give. Probably nothing else can be suggested which will dovetail so well with bee-keeping, and we know that many are pursuing this plan. In most sections of this country the demand for berries is never fully satisfied, and hence we feel that Mr. Scarff is pursuing a safe course when he advises bee-keepers to engage in the culture of berries. From long experience he knows the varieties which are profitable, and his advice should certainly be valuable to the inexperienced.

STORRS AND HARRISON.

The above celebrated firm is one of the institutions of Ohio. It is known far and wide throughout America as a headquarters for good nursery stock such as trees, plants, bulbs, and seeds, and also the supplies connected therewith. They have been 54 years in business, and actually use 1200 acres of land in their nursery work at Painesville, Ohio. It is needless to say that we are proud of the fact that their usual fall announcement appears on p. 1088. They keep a full line of every thing pertaining to the orchard, vineyard, lawn, park, street, garden, and greenhouse. The senior member of this firm, Mr. A. I. Root, has bought considerable quantities of nursery stock from this firm in times past, and always with perfect satisfaction. Any one who has had much experience with nursery stock knows how important it is to deal with a good reliable firm. There are many of the other kind, hence the importance of the foregoing testimony.

The California Fruit Products Co., of Colton, Cal., will mail three colored souvenir post cards free to any one who will write them, and also to any friends whose names and addresses you may inclose.

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In order to place *Up-to-date Farming* in your home I will send it to you for **three months for 10 cents**, and include, with my compliments, a complete set of **American Girl post cards**. Every woman should read the family and household pages of *Up-to-date Farming*; the boys will be interested in the stories and puzzles, while the men will read its agricultural and marketing features with much profit.

Remember, 20 souvenir post cards (American Girl set) and a three months' subscription to *Up-to-date Farming*, all for 10 cents (stamps or silver).

Garrett Wall, Up-to-Date Farming, Indianapolis, Ind.

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OF HAVING FINE HONEY IF IT IS IN POOR PACKAGES?

If you are among the fortunate ones who have secured a good crop of honey, surely you will not be so unbusinesslike as to sell it in second-hand or inferior cases. Your honey will sell far easier in nice new cases or tins. **WE HAVE THEM.**

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The heavy duty and freight charges we have to pay make it impossible for us to sell in Canada at Root's prices. We have, however, made prices as low as possible, and in no case do we charge nearly as much extra as the amount of freight and duty we ourselves have to pay on the goods.

We would ask you, when comparing our prices with those of other dealers, to take into consideration the QUALITY. If you do so we feel satisfied that you will place your order with us. The splendid quality of the material sent out by The A. I. Root Co. has given "Root's Goods" a world-wide reputation. Remember, "The best is cheapest."

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We want to show you our goods and take your 1909 order there, giving you the advantage of the **EARLY-ORDER CASH DISCOUNT**. Ask us about it.



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# GLEANINGS IN BEE CULTURE

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E. R. ROOT, Editor

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VOL. XXXVI

SEPTEMBER 1, 1908

NO. 17

## STRAY STRAWS

DR. C. C. MILLER

E. W. ALEXANDER, as one of the rank and file, let me salute you on your triumphant march to receive your crown of rejoicing. "Well done, good and faithful servant!"

EDITOR DIGGES made some experiments which showed that, when working on clover, the bee's load rarely exceeds  $\frac{1}{10}$  of a grain of nectar, yielding from  $\frac{2}{10}$  to  $\frac{3}{10}$  of a grain of ripened honey. That means that the nectar is boiled down to  $\frac{1}{2}$  or  $\frac{3}{4}$  of its original weight. The ripened honey averages  $\frac{3}{4}$  grain per drop; but the bee must load up again and again to produce that drop.

THE REPORT of the United States Commissioner of Internal Revenue shows that, during the fiscal year ended June 30 last, there were distilled 119,808,402 gallons of spirits—a decrease, as compared with the previous year, of 14,333,672 gallons. There was paid to the government as revenue on whisky and other spirituous liquors, \$147,550,281—a decrease of \$15,767,038.

LOUIS SCHOLL reports, *A. B. J.*, 236, that he has this year harvested over 40,000 pounds of comb honey, "almost all by his wee little 6-feet-3 self." Good for Louis! Considering the fact that the season has not been very good in Texas as a whole, makes the record of our 6-feet-3 all the better. This means that our Texas department will be all the richer for the experience which this big crop brought with it.—Ed.]

D. M. MACDONALD, *Irish B. J.*, p. 33, rebels against the idea of having only a bee-space under bottom-bars. He says, "Here, the  $\frac{1}{4}$ -inch, or even the  $\frac{3}{8}$ -inch space below frames is giving place to a full  $\frac{1}{2}$ -inch. Bees respect all the three equally, and it is my belief that they would be as well satisfied with a full inch." Your head is level, my Scotch friend. Some of the spaces under my bottom-bars are  $\frac{3}{4}$  and  $\frac{5}{8}$ , and there is no trouble. Really, the ventilating space is 2 inches, that being the depth of the bottom-board; but an open rack within  $\frac{3}{8}$  of bottom-bars prevents building down. How much more than  $\frac{3}{8}$  the space might be I don't know; but if I live I'll find out.

MR. EDITOR, you say, p. 927, that in baby nuclei, when the queen has filled all available cells she will stick two, three, or five eggs in a cell sure; but are they not all worker-cells? In the case I mentioned, there were five eggs in a queen-cell, and I think no worker-cell had more than one egg. Do you find in baby nuclei queen-cells with more than one egg, and no laying workers present? [No: now that we think of it,

we have never noticed more than one egg in a queen-cell unless laying workers were present; that is to say, under normal conditions there is never more than one egg in a queen-cell, so far as our observation goes. The queen-cell in the nucleus to which you refer must be, therefore, quite an exception to this general rule.—Ed.]

"SWEET CLOVER usually begins to yield nectar shortly after clover and basswood are out of bloom," p. 1010. Sweet clover must be slower with you than here, or else clover and basswood earlier quitters. White sweet clover opened six days before basswood opened here, this year. How long it opened before the close of white clover, I don't know yet—seven weeks at least. Yellow sweet clover was 23 days ahead of white sweet clover, and only seven days after white clover, in opening. [It is evident from what you write elsewhere in these Straws, and from what you have written at other times, that your clover and basswood flows begin and end much later than in our locality. It is not strange, then, that your early flow overlaps that from sweet clover.—Ed.]

A SECTION of honey has been in our refrigerator six weeks. It looks just as dry and nice as when first put in. I wish you would try the same thing at Medina. Because a refrigerator is cool like a cellar, does it necessarily follow that a section in a refrigerator will become weepy in the same way it will in a cellar. [Some refrigerators afford a dry cold, while the average cellar furnishes a damp or wet cold. Then, too, in all refrigerators the temperature is colder than in any cellar. A dry continuous cold of, say, 40° F., or lower, in a refrigerator, will not make honey candy or become watery, while a variable temperature with more or less of dampness of 50 or 60 or even 70° F. will do much damage to comb honey. After all, a room with a dry hot atmosphere, with enough ventilation to carry off moisture, is a far better place for the storage of comb honey than any refrigerator.—Ed.]

MR. EDITOR, you ask, p. 987, what my average yield for this year was. "Was"? Bless your heart, it's not a case of "was" but "will be." For a good bit of honey is yet on the hives, and the bees are still storing, although slowly. We had an immense clover flow, which continued till the clover was scorched by the drouth, no rain to speak of falling from July 17 till Aug. 11. Then a bounteous rain came, and to-day, Aug. 15, we are getting more. If clover revives, and if heartsease comes in sufficient quantity with its water-white honey, the average will be pretty heavy. I'll be glad to give it later. Just now there are piled up in the honey-room 12,100 finished sections, making an average of nearly 94 sections

per colony, so far. The best yielder has given, so far, 216 sections. It will have to go 84 sections better than that if it matches the champion of the year 1903. I'm a little afraid heartsease will not do much this year, for the drouth was not conducive to a good start.

I WONDER if one of the signs of queenlessness has ever appeared in print. Suppose you have a colony thought to be queenless to which you wish to introduce a queen. There is often a danger that, by some hook or crook, a virgin queen may be present, perhaps reared from a cell that has been missed, perhaps an interloper from elsewhere. If you find honey in pretty much all cells in the brood-nest not already filled with brood, you may feel fairly safe to introduce your queen. If, on the other hand, you find these cells empty, and polished so they shine, ten to one there's something in the hive that the bees respect as a queen. If you find honey in worker-cells, and drone-cells empty and shining, the bees are likely to have been queenless for some time, and perhaps laying workers are in contemplation. [You are orthodox in all you say. We use these signs in connection with other evidences that may or may not be present in determining the condition of the colony; but, strangely enough, very little, comparatively, has been made in print of the fact whether the worker-cells have been filled with honey or are empty and polished up clean. If polished, and no eggs are in them, it indicates that a virgin is present and will probably lay soon. Or the condition may show that a laying queen has just been let loose from a cage and will soon deposit eggs.—ED.]

THE LAZY WAY of introducing queens mentioned on page 987 still proves successful, but beginners should be warned that it will do only with a strong colony, and in hot weather. A queen at the entrance of a nucleus, or even at the entrance of a strong colony in a cold spell, would be chilled. An illustration of the convenience of the plan comes very pat. After I had written the first part of this Straw it occurred to me that there were seven queens that had now been imprisoned three days at hive-entrances, and that it was time to let the bees at the candy. The whole job, from the time I left the house till I was back in, took just 15 minutes. As the day is rainy, no bees flying, to have opened up those seven hives, taking off and returning their supers, would have been something of an undertaking. [Introducing at the entrance may require more than hot weather or a strong colony, to be successful. If there is a dearth of honey the situation might be complicated. Elsewhere in these Straws you say that honey has been and still is coming in, or was at the time of your writing. Under such a condition a colony is very tractable, and almost any plan of introducing will work. We would not advise beginners, at least, to practice the "lazy way" after the honey-flow, with a colony weak or strong.—ED.]

"WHEN the robbers are once trapped they should be taken to an isolated location or brimstoned. Having once acquired the stealing habit they will do tenfold more damage in a beeyard than they can ever do good." That, on p. 989, is in accordance with the general belief, "Once a robber, always a robber." There's something in

it, but not nearly so much as I once believed. I suppose there are bees which have become so addicted to robbing that the best thing to do with them is to kill them. But the beginner should not get the idea that it is a wise thing to kill any bee he finds robbing. Any worker old enough to be a fielder will rob if conditions are right. But once robbing does not make an inveterate robber. Given the right chance when no honey is to be had in the field, and I suppose that any field bee in my possession would rob. But I doubt if a single bee of mine is such an inveterate robber that its death would be a gain. In the spring I've had more than one case of a weak queenless colony attacked by robbers. If I let it alone till all the honey is cleaned out, no harm will follow, and the robbers will live honest lives ever after—unless some fool bee-keeper puts temptation in their way. If I should fasten the robbers in the hive when it is filled with them, and should brimstone them, it would simply mean the practical loss of a colony of good bees. In harvest time, if a sudden break comes, from rain or otherwise, if there's any chance for it, a bad case of robbing will be started, and robbers will be trying all cracks all over the yard. Next day, with a renewed flow of nectar, honey may stand exposed by the hour, and not a robber trouble. The robbers of yesterday are no longer robbers, but honest bees. The great thing is to avoid offering temptation to steal in a time of scarcity. Same with folks. [What you say is true if a honey-flow is soon to come on. But after the flow, and there is a prospect of a long dearth, then the statement that "a bee once a robber always a robber" still holds good providing, also, there are hives to be opened often, or weak nuclei in the yard. Experience teaches us in our queen-rearing operations that a dead robber is worth much more dead than alive. For the beginner, at least, we still think that a robber-trap should be used for all seasons—especially if his yard is located near a highway.—ED.]

GENERAL MANAGER FRANCE, in a circular of Aug. 10, quotes: "Prices asked for some, 15 cts. fancy comb retail; 12½ wholesale; car lots, 11 to 12; extracted fancy clover, 10 cts. retail; 8 wholesale; 7½ in car lots." I'm afraid, friend France, that this pronouncement was not sufficiently considered. I don't believe conditions warrant any such tumble in prices. You've had a big crop. So have I. But "there are others." Those who have had failures are not blowing like you and me. Bro. Doolittle says basswood, their great reliance in that locality, was almost a total failure. But the fact is not advertised in big headlines. There's no bumper crop in California. When best comb is 17 in San Francisco, do you think it ought to be only 12½ in Chicago? Nor do honey-market reports in bee-journals support your figures. Look at GLEANINGS, page 976. Those who give quotations there are not bulling the market, for they are largely buyers. The average quotation for best comb is 14½, or 2 cts. above you. You see we all have a lot of confidence in you, and I'm afraid that some, trusting your figures, will get less for their honey than they are entitled to: [In our opinion Dr. Miller is right. Let the reader consult the honey market in this issue, as well as the reference on page 976. Apparently, conditions at present



warrant holding for better prices than those mentioned in the circular of Aug. 10. General Manager France is usually right; but in this case we believe he has made the figures too low.—ED.]

## EDITORIAL

By E. R. ROOT.

MR. LOUIS F. WAHL and bride, of Chili Center, N. Y., spent a day at "The Home of the Honey-bees" on their wedding-trip. Mr. Wahl has done considerable in the way of bottling honey, and he was once one of W. L. Cogshall's "lightning operators." Since he has taken unto himself a "better half" he will doubtless make things hum.

We wish the couple long life and happiness.

### OUR SPECIAL ISSUE.

As promised we take pleasure in presenting this our special issue for September, containing articles on preparing honey for market, including the general subject of bottling extracted, and scraping and grading comb honey, etc. The suggestions contained herein for disposing of the crop and preventing a glut at any one point should be given careful consideration. There are some articles on preparing for winter; why some bee-cellars do not give good results, etc., that will be seasonable.

### SELLING BY SAMPLE.

PERHAPS nothing is more exasperating to one than to buy a lot of honey, and then discover that the shipment is far below the quality of the sample. If he has paid cash in advance the matter is made more complicated. A controversy immediately ensues—if not an ugly quarrel. It is sometimes difficult to make an adjustment under such circumstances. Buyers should clearly specify that the goods are to be fully equal to sample or they will refuse to accept them. There is nothing like having a clean-cut understanding in black and white before the honey is delivered.

### THE PURE-FOOD LAW AND ITS RELATION TO HONEY LABELS.

THOSE who are doing a business of bottling honey, provided they bottle more than they produce, should avoid the use of the term "from the apiary of" and substitute therefor the terms "bottled by" or "packed by John Jones, of Honeyville, O." Some bottlers use the term "put up by," but in the opinion of the Pure-food Commission this term would not pass muster. Nothing definite could be ascertained until a suit were tried and the matter finally settled by the courts. For that reason we advise the use of the terms "bottled by" or "packed by" as being safer.

### BOTTLING HONEY; A SCHEME TO PREVENT A GLUT ON THE MARKET AND AT THE SAME TIME HOLD UP PRICES.

Now that the season is practically closed, it is generally admitted on all sides that there has been a good crop of white clover throughout most of

the clover belt. Through some sections of it, of course, there has been little or no honey, but this does not alter the fact that a large crop has been secured. It would be folly to send all of this honey to the big markets, thus glutting them. With a little intelligent effort much can be done in the way of selling honey around home.

As mentioned elsewhere in this issue, Mr. E. E. Coveyou, Mr. Chalon Fowls, and some few others, are doing the producers a distinct service in that they not only sell their own honey locally, but are able to take a large amount from others, for which they also find a good market at good prices. But the trouble is, the number of honey-bottlers among bee-keepers is very small. They can not and do not pretend to take more than a small portion of the table extracted honey that is produced in this country, especially this year.

Mr. Coveyou, Mr. Fowls, Mr. Pouder, and the rest have done much in creating a local demand for extracted honey in small packages; and what *they* have done, others can do for their respective localities. It is highly important that this year there be more local sales to consumers direct and to the trade.

The article by Mr. Coveyou, in this journal, and in other papers, explains many secrets of the art of putting honey in small packages. Then there is a chapter or two in the A B C and X Y Z of Bee Culture, under the head of "Extracted Honey," sub-head of "Bottling Honey," that gives many important details on this important branch of our industry.

The point we wish to emphasize is this: Do not rush your honey to the large cities—at least, not after they are oversupplied. Study the art of bottling your extracted, and put up your comb honey in neat attractive cases. The sections should be nicely cleaned and scraped, and carefully graded. The poor ones containing uneven combs should be sold around home in the form of chunk honey.

Place your best goods on sale at your leading groceries, agreeing to take off their hands all that candies, and replace it, as does Mr. Fowls, with fresh goods. Try to make cash sales; but in case you fail to do this, get the grocer to take it on consignment. Charge him with so much honey as if you had sold it to him, and then give him credit for that which he does not sell, and which you will take off his hands.

In the country districts it may be advisable to sell comb honey in the bulk form at so much a pound or quart. Call on the farmer's wife and give her a free sample of your honey to taste; and, while you are about it, do not forget to treat the children. Sell for cash if you can; but if she has not any ready money, take eggs or butter if you can use them. Every opportunity should be made to prevent honey from glutting the big markets.

It may cost a little something to work up a trade, but it is worth going after.

It is very important that those who bottle honey, or sell it to the local trade, be careful that they do not overlap each other's territory. What is a fine business for one man is practically good for nothing for two. This country is so large there is no reason why bee-keepers can not spread out.

HONEY-CROP CONDITIONS; WHY PRICES ON HONEY SHOULD BE STABLE; A LIGHT CROP IN COLORADO AND IN THE BUCKWHEAT REGIONS.

FURTHER reports confirm previous statements that this has been one of the heaviest seasons for clover honey that we have had in years; but, very fortunately for the honey market, there seems to have been a light crop in some important sections of Colorado—namely, at Berthoud, Fort Collins, and Loveland. The season has also been from light to poor in the vicinity of Montrose. The only good report that we have received from the State was from Olney. The western slope of Colorado, as reported in our previous issue, has also had a poor season. Another report, from a large buyer of alfalfa, says that there would at least be a shortage of 25 cars of Colorado comb honey. If true, this would mean that not much of this Mountain State's product will reach the East.

On top of this, in one of the most important districts of New York where buckwheat is produced by the carloads, it is reported that the outlook for this dark honey is very slim. There may not be more than a quarter of a crop. In this same section, also, the clover flow has been very light.

It would appear, then, that the bumper crop of white clover throughout the Northern States west of the Mississippi will not have very serious competition from buckwheat honey, from Colorado alfalfa, nor from Southern California sage.

The season has been good in some parts of Texas, and poor in others; but as the Lone Star State usually consumes what it produces, it will not this year, at least, have any effect on prices Northern States.

Taking every thing into consideration, it is our opinion that the market for clover honey should now be stable at least. There is no reason why it should go lower; but, on the contrary, we should expect it to be a trifle higher, although we do not advise bee-keepers to hold their crops and then rush them off to market at the close of the holidays when prices of honey usually take a slump. It would be too dangerous to hold for better prices.

Old Dame Nature seems to have a queer way of distributing her honey-flows. For example, if the crop has been heavy in Colorado it is likely to be light in the clover regions, and *vice versa*. It is well that this is so; for if the crop were heavy in every portion of the United States, prices would take an awful sag, and it is possible that we might not be able to get them up again to their former level.

There is another factor that should tend to stiffen the market. In a recent trip through Michigan we found the fruit crop had been very light, especially of peaches, and reports are not very flattering for other fruit sections.

There is still another factor. Times generally are improving. We notice by one of the lumberman's journals—an authority on the subject—that it is feared there will be a scarcity of cars, especially when the wheat crop begins to move. With the improvement of times, the scarcity of buckwheat, and of honey generally in the State of New York, the lightness of the Colorado crop,

the failure of the season in Southern California, we may expect but very little competition for the big crop of Eastern clover.

We advise producers to make careful inquiries of the more distant markets, and be careful about shipping honey to the centers already congested, especially if prices are on the sag. Then, as much as possible, they should market around home. If these precautions are taken, the market will begin to stiffen.

We just received a report from the State of Washington, in which it is stated that there has been a good crop there; and one from the San Joaquin Valley, California, in which it is stated that the crop is going to prove to be a "bumper." But remember that the San Joaquin Valley is a comparatively small area, and hence its total output will not be very large. That portion of California seldom produces enough to shade prices in the East.

#### BEE-KEEPING IN THE HAWAIIAN ISLANDS; A VISIT FROM A RESIDENT BEE-KEEPER.

A FEW days ago we had the pleasure of a visit from Mr. James Ritter, or "Brother James," of Honolulu, who is making a visit to this country. He stopped off at Medina for a few hours. He is connected with one of the great educational institutions of Honolulu, the St. Louis College; is a bee-keeper, and one who seems to be well posted as to the development of bee-keeping in the Hawaiian group.

He reports that the industry is carried on very largely by syndicates who own colonies by the thousands. One company of Japanese, for example, owns 4000 colonies. The American Sugar Co. has about 12,000, and so on.

The Hawaiian bee-keeper finds a ready demand for his honey, both in this country and in Europe, especially for certain grades, which are quickly taken up by the baking business of the Pacific coast. On account of some of this honey being a mixture of a product from aphides, cane sap, and the nectar of flowers, the authorities at Washington have refused to allow it to come into this country as honey, but it may be sold as "honeydew honey."

We had quite a quantity of it, but the bakers in our vicinity would have none of it; but we are informed that it is accepted very readily by the Pacific-coast bakers; in fact, they prefer it to any thing else.

But this is not the only honey that is produced there. At least 50 per cent of all the honey from the islands is mesquite, or, as it is called there, the algarroba. It will be remembered that this is a good honey in Texas; and, so far as we know, it is first class in Hawaii.

As the Hawaiian group consists of a number of small islands, large syndicates are able to control practically all of the bee-ranges. Whether this accounts for the fact that there are but few small bee-keepers, we do not know. Certain it is, these big concerns find the production of honey very profitable.

But let no American bee-keeper rush to Hawaii, as he will find a small chance to get a foothold there, probably. The cost of living is comparatively high, and the tenderfoot had better keep out.



It would appear that our bee-keeping cousins of the Pacific are probably the most extensive of any in the world. They are apparently up to date, using modern appliances, such as power honey-extractors and the like.

Dr. E. F. Phillips, of the Bureau of Entomology, Washington, D. C., has recently made a tour of these islands. We asked him to furnish us some articles for *GLEANINGS*. This he has promised to do, and we hope to have them ready to present some time this fall.

#### CHALON FOWLS, OF OBERLIN, OHIO; HIS POWER-DRIVEN EXTRACTOR, ETC.

OUR readers will remember Mr. Chalon Fowls, of Oberlin, Ohio, as one who does quite an extensive business in bottling extracted honey. He furnishes the local trade in his vicinity for miles around with extracted honey put up in tumblers and bottles. He is always careful to have thick well-ripened honey, mainly of his own production; heats it, and, while hot, bottles it, and then guarantees to take it off the grocer's hands if any of the bottles show any indications of candying. He makes it a business to go around and inspect his goods; and if in any case there are any that show signs of granulating he takes these away and exchanges them for fresh goods. In this way he has developed a fine trade—so large, in fact, that most years he is compelled to buy honey to supply the demand.

Mr. Fowls' family consists of himself and wife, two grown-up daughters, and a son eighteen years of age. Among them they take care of his business very nicely. They run a series of extracting-outyards in connection with the home yard. Like W. Z. Hutchinson, they have a reserve of combs, pile on the supers during the honey-flow, and at the close remove them after getting the bees out with the bee-escape.

Formerly he has been extracting at each of the outyards after the flow, having a two-frame extractor which he hauled around. But this year he purchased a four-frame power-driven extractor with a gasoline-engine, and his two girls are now doing all of his extracting at home. He and his son go to the outyards with a wagon, take off the filled supers that are above the bee-escape, load up, and drive home. The two girls in the mean time are extracting the shallow combs (for that is what Mr. Fowls uses) as fast as he brings them. With the power extractor they can do all the work. They start the engine and then commence uncapping. Two of them uncup most of the time, while one of them puts in the filled combs and removes the empty one and starts the extractor.

At the time we visited Mr. Fowls the weather was quite cool. Honey was very thick, and yet the extractor was throwing it out of the combs comparatively clean, for the engine does not tire out, and through the medium of the slipping belt the reel starts very gradually, so that the bulk of the honey is thrown out before the reel reaches its maximum speed. Then it makes a perfect whirr, and the honey, warm or cold, is bound to come out. The combs are next reversed, when the operation is repeated.

Mr. Fowls said to us that he had heard a good deal about the cleaner and more effective work

done by power extractors; and from his preliminary tests he was almost prepared to believe that the extra amount of honey he saved by the more thorough extracting would pay for the extractor in a short time. This, of course, did not take account of the saving of labor, which is another item.

Ordinarily, producers extract honey as fast as the supers come off the hives, because the combs, being warm from the heat of the bees, extract easier and cleaner; but when one uses power to drive an extractor he can drive the reel so much more rapidly that he can surpass hand work. At all events, if one puts a bee-escape on a pile of supers at night, and it should be at all cool, the combs will be chilled before the next morning. It is an awful job to take the extracting-combs without a bee-escape, extract immediately, and put back the empty combs. The bees are smashed, and the operator, if it happens to be during the robbing season, must be armed with a bee-proof suit from head to foot, with trousers tucked in boots. There is more or less annoyance from colonies all stirred up, and at the end of the extracting the whole yard will be in an uproar. If the extracting is done during a heavy honey-flow there will be no robbers, but the work of the colonies will be more or less interrupted.

This plan requires fewer combs; for one who extracts after the honey-flow, at his leisure, must have a large supply of combs as well as storage room for them after the season is over.

Mr. Fowls has made quite a success of bee-keeping if we may judge by external evidence. He is what we might call a bee-keeping specialist, for he has no other business. Twenty-five years ago, when he began to keep bees, he bought a modest home on the outskirts of Oberlin, a college town, and lived in the old building until he accumulated enough money to build himself a fine house. It is a modern structure with hardwood finish inside, and well appointed in every detail. He has given his two girls a college education, and they in the mean time have worked with their father during their summer vacations. The son is only eighteen, but appears to be well able to hold up his end of the job in extracting. All together, we felt that Mr. Fowls, having accomplished what he has, should be congratulated. Any father ought to be proud of girls who are not afraid of work nor too nice to go out into the extracting-house and get themselves messed up with honey; and when it comes to uncapping, we venture to say they will hold their own with any two men we have ever seen.

One of them, before we realized what she was doing, picked up a can of honey, weighing not less than 60 lbs., and carried it from one building to another. We remonstrated, telling her that she ought not to do that. "Oh, my!" she remarked, smiling, "I am used to that." Her father told me he had protested time and again, but it did not do any good.

We hope to present soon a picture of Mr. Fowls and his interesting family. Any bee-keeper who can give his children a college education, build a fine home, and at the same time educate the general public to the value of honey as a food, for miles and miles around, is to be congratulated. Some time we hope to introduce this family more formally to our readers.

## GLEANINGS FROM OUR EXCHANGES

By W. K. MORRISON

### FOUL BROOD IN IRELAND.

After much persistent hard work the bee-keepers of Ireland have succeeded in obtaining the passage of a foul-brood law by the British Parliament. This law would never have been enacted without the powerful backing of the Irish Department of Agriculture and the sympathetic interest of the Irish Nationalists in the House of Commons. Thus far the English bee-keepers have failed to secure such a law, though they certainly are in need of one as much as their Irish brethren! Hoorah for Ireland!

### DUAL QUEENS.

Among the delegates in attendance at the Franco-British conference of bee-keepers, none excited a livelier interest than Mr. F. R. Beuhne, President of the Victoria Apiarists' Association. In the discussion over Mr. Cowan's paper on the plural-queen system he was the only one present who could speak from practical experience on the value of more than one queen in a hive. He has practiced the dual plan for some years with success; that is to say, he has a young queen mated in a hive where there is a queen at least two years old. For a time mother and daughter get along well enough side by side; but after a while the old queen quietly disappears. He finds this an excellent method of rearing young queens and putting them to work "helping mamma" with her knitting until the latter ceases to exist.

### BEEES IN THE IMPERIAL VALLEY, CAL.

The bee-keepers of the Imperial Valley are of the opinion that there are sufficient bees now scattered over the valley to gather up all the honey available. In 1907 only 1000 cases of honey were produced from 700 colonies. During the summer and fall of that year, however, 5000 colonies were shipped in from elsewhere. This year the honey crop is estimated at 4000 cases, and this, in the opinion of experts, is all the valley can accommodate unless the alfalfa crop is largely increased. The alfalfa-bloom louse is a serious pest which curtails the yield of nectar very much. This is a microscopic insect which eats the alfalfa-bloom and consumes the nectar at the same operation.

Thus far the Imperial Valley has marketed its honey in El Paso, Texas, with satisfactory results. They ship there in carloads, where it is again shipped in small lots.

### PARCELS POST THIS FALL.

It will do no harm to ask your Congressman when he comes around this fall seeking for votes how he stands on the parcels-post question. Don't let him put you off with an evasive answer. You can inform him the postoffice has all the machinery necessary for the inauguration of this great improvement just as soon as it gets the signal from Congress. The mail-wagons go out every morning with plenty of room inside for packages. It

is the same with cars. Of course, something will be said about the retail country merchant being ruined; but the rule is now the greatest good to the greatest number. Both Bryan and Taft are known to favor parcels post; but there is no politics in this business in any event. The farmers are too slow as a rule in asking for what they desire and need. Whenever the "business" interests demand any thing they very speedily get it from Congress. They organize, and push things until the Congressmen are compelled to give them every thing they want. Any way, almost all the bee-keepers would be helped by the establishment of parcels post, and would like to see it come into use.

### HAY-CAPS, AGAIN.

The following from *Hoard's Dairymen* bears on a very interesting question to bee-keepers. The use of caps for curing clover hay is one of the best agricultural improvements of recent years. It is particularly useful in curing alfalfa, as it allows the farmer to let his crop grow to full bloom before cutting it. In localities where the ranchers cut the crop before it is in bloom the bee-keepers can, with the greatest confidence, recommend hay-caps. The crop is cured without losing the leaves and other delicate parts. This is the essential point.

In the *Dairymen* of the 7th is an editorial on curing alfalfa. As I wish next season to follow these directions, and I am in doubt about some points, please inform me first: What is the size of your hay-caps? I can not find any cotton cloth more than 36 inches wide, except double-width sheeting. Second, how long must the hay remain in the cock to go through the heating which you say it requires to cure properly, if weather is good? and should it be put up damp enough to change color in the curing process? Wasco, Ill. N. H. W.

You will find a very full discussion on making alfalfa hay in our two last numbers. The hay-caps are made from A sheeting, 40 inches wide, but 36-inch cloth will answer. The time the hay must remain under cover will depend on the weather. It may require anywhere from one to three days. When the hay strongly twisted shows no sap it is ready for the mow. If properly cured in the cock it will remain a fresh green in the mow, and will not heat or change color.

### GLUCOSE AS A FOOD.

A friend in Nebraska has sent us a clipping from *Green's Fruit Grower*, which praises glucose highly as a food. Of course he expects us to refute the statements made therein. Briefly the case is thus: *Natural* glucose is a very fine food (honey is a natural glucose). It is found also in fruits, but in combination with something else. It is true, certain scientific chemists have praised artificial glucose, among them Dr. Wiley. He has changed his opinion, however, and so have others. Artificial glucose is made by the action of sulphuric, hydrochloric, or muriatic acid on starch. The action is far from being complete, and traces of these powerful acids are found in the glucose. Small as the quantities are, they are dangerous, as was amply proven by the Manchester case. Our glucose always contains chlorides. Students of digestion are agreed that these should not be there, even in very small amounts. It is true that glucose is used in making cheap or inferior preserves. For first-class goods, cane sugar is used. Let California preserve-makers use glucose and it will be only a question of time when their industry will be ruined. The ordinary "corn syrup" of the groceries contains about one-third part of cane syr-



up, which makes the glucose eatable, otherwise it would not sell at all. It would be better for the public if it were all cane syrup; and it ought to be remembered that the United States can produce vast quantities of cane syrup at a price not appreciably greater than that now paid for glucose. Dr. Wiley was hopeful of creating just such an industry, built up on honesty and fair dealing. Several large plants have been started lately in Louisiana to make a good syrup; but more would have been started had Dr. Wiley been allowed to have his own way in the glucose controversy. There is this to be said, however: The American people are rapidly becoming educated on the food question, and are more particular by far about their eating than they once were. The more particular they are, the better it will be for honey-producers.

#### LAND FOR SETTLERS.

THE following accounts relate entirely to lands lying under an irrigating canal constructed by the United States government acting for the settlers. Further particulars can be obtained only from the Secretary of the Interior, Washington.

In connection with the Sacramento Valley irrigation project in California, 265,000 acres will be subject to selection and filing on and after Sept. 3, 1908. The lands lie in townships 12 to 15 north, ranges 6 to 10 west, Mount Diablo principal meridian.

At the Carlsbad, N. M., irrigating project, 106,000 acres will soon be subject to settlement and entry.

Nearly 59,000 acres will soon be open for settlement at Big Bend, Washington.

At the Sun River irrigation project in Montana, 45,000 acres will shortly be opened for homestead entry only.

Dates will soon be fixed for the opening to settlement of 128,000 acres of irrigation lands in connection with the Minidoka project in Idaho.

On and after Sept. 10, 1908, there will be open for settlement 12,000 acres on the Payette-Boise project in Idaho.

The Secretary of the Interior will shortly declare open for settlement 300,000 acres on the Lower Yellowstone project in Montana.

It may be added that the government has approximately 3000 farms elsewhere which it will give away on certain conditions. These are all on irrigation projects. As a rule, these homesteads are superior to those given away some years ago in the prairie States; and to men who understand their business they offer excellent opportunities. All of them are likely to be in the heart of a good bee-range.

#### THE LORE OF THE HONEY-BEE.

Mr. Tichner Edwardes, author of "The Bee-master of Warrilow," has again appealed to the reading public of the English-speaking race with a new book bearing the above title. Without having seen it I can not express an opinion as to its merits or demerits; but Methuen & Co., the publishers, state that it is "a history of bees and their masters from the earliest times down to the present. The wonderful communal life within the hive is touched on in all its varying aspects, and the reader is introduced to a class of men

from all ages, as quaintly original as their calling is inimitably picturesque. The book covers the whole field of ascertained facts in the natural history of the bee, as well as the romance of beemanship, past and present; and nothing better could be put in the hands of the beginner in apiculture, as well as those of the advanced student of what is probably the oldest human occupation under the sun."

## NOTES FROM CANADA

By R. F. HOLTERMANN.

Messrs. John Newton, Thamesford, Ont.; J. D. Chalmers, Musselburg, Ont., and Homer Burk, Highland Creek, Ont., have been appointed inspectors in Ontario in addition to the list recently given in GLEANINGS.

#### THE EFFECT OF STORES IN THE HIVE UPON THE ENERGY OF THE BEES.

Perhaps it is not going too far to assert that, if the bees have not much stores in the hive, they are less active in gathering honey (I certainly believe they are less inclined to rear brood); but it is a new thought to me that the amount of stores in the hive would have any influence on the honey-gathering disposition of the bees. According to that, the disposition of a colony to gather honey would be reduced to a minimum.

#### BUCKWHEAT-GROWING.

On p. 958 Mr. W. K. Morrison says, "Probably few bee-keepers are aware that there has been a serious decline in the production of buckwheat as a farm crop in America." This statement is followed by facts and figures. Probably that is why the prices obtained in Canada for buckwheat are so much higher in recent years, and it may be for this reason that the acreage in Ontario, at least, is on the increase. German buyers are anxious to buy buckwheat grain in Canada.

#### SHADE FOR BEES.

In *Stray Straws* for Aug. 1, Dr. Miller writes, "When I look back I see the very best results from bees under apple-tree shade." That is certainly my experience. I like to have trees in an orchard. I like to have the bees shaded during the heat of the day, and I believe such shade has a cooling effect, even beyond the actual area of shade. Of course, I prefer a tree which breaks into leaf late in the spring, and I want light enough under the trees to produce healthy vegetation.

#### VENTILATION TO REPRESS SWARMING.

The question of ventilation in the supers by other means than at the entrance of the hive has been discussed. I have a  $\frac{1}{4}$ -inch by 5-inch opening for ventilation in three-fourths of my extracting-supers, which can be closed by means of a slide. I find the ventilation given in this way is a great comfort to the bees during hot weather. During the time the bees are gathering surplus honey there is no great difficulty in keeping

up the temperature of a normal colony. I feel quite sure, backed up by examination, that the bees are sometimes driven out of portions of the hive and compelled to remain idle, owing to excessive heat or lack of ventilation in the hive. Shade and a *large* entrance have, of course, an effect similar to the super ventilation. However, I like to be able to use all in combination.

#### PRICES OF HONEY.

The "Honey Committee" has again done good work in recommending prices for honey. There is no doubt that the work of this committee is the most valuable apicultural work that has been done in Canada for years. Prices, after allowing for wholesale, retail, and jobbers' profits, the quantity sold, the distance from market, and the cost of the package which contains the honey, are something like uniform. Such results must, in the long run, be an advantage to buyer and seller alike. May the good work spread to the United States.

#### PREVENTING THE SPREAD OF FOUL BROOD.

Recently I saw James Armstrong at work—one of Ontario's foul-brood inspectors. He appeared to have a plentiful supply of toothpicks, and I suppose that, to obviate the possibility of carrying infection from cell to cell, he appeared to discard these very freely. Some time later I had dinner at the same hotel that Mr. Armstrong was patronizing, and upon leaving the office I saw him help himself to a very liberal supply of toothpicks—rather more, in fact, than I thought necessary for a mouth with an ordinary set of teeth. Upon reflection light dawned upon me, and I could see wisdom displayed in combination with economy.

#### COMB FOUNDATION IN SPLIT SECTIONS.

This year I have seen some results from putting a long strip of foundation into four sections split on three sides to receive it, the sections thus having no passageways between the wax and the wood unless the bees gnawed through the foundation. There is no doubt that such a section will ship well, because the comb is thoroughly attached on all four sides; but it seems to me that the bees are noticeably more likely to work on one side of a section independently of the other. This results in a considerable percentage of sections with one side built out and capped while the other side is left entirely untouched. There are, therefore, more cull sections under certain conditions; yet I am pleased in general with this way of putting foundation in sections.

#### THE SELECTION OF LARVÆ BY QUEENLESS COLONIES.

It is now about ten years since Dr. Miller and I at the National convention in Chicago mildly crossed swords on the question of the bees, when queenless, selecting larvæ for the purpose of raising another queen. I thought I had observed that queens reared under such conditions sometimes hatched prematurely and were much inferior. In GLEANINGS for July 15 Dr. Miller puts the question very fairly; and the evidence he brings forward to the effect that the bees do not select larvæ too old to develop good queens is

very strong. Would it not be well to carry the experiment at Washington a little further, and give the time of hatching, and, as far as it can be judged, the merits of the early-hatched queens as compared with those hatched later, if there should be any material difference? Dr. Miller states rightly that the question is one of importance. I may be mistaken in my decision; and with the variety of work I have had to perform I may have come to a wrong conclusion.

#### DOES BUCKWHEAT YIELD NECTAR DURING THE CLOVER SEASON?

On page 236 of the *American Bee Journal*, Mr. J. L. Byers says: "Speaking of buckwheat, I am at a loss to know if the plant yields no honey early in the season, or whether the bees will not work on it when clover is in blossom. A large amount of buckwheat came up among the oats and other grain. One field of ten acres was literally white with the blossoms during the time clover was in blossom; yet, although we had a few mornings that one would think ideal for the buckwheat to secrete nectar, scarcely a bee could be found upon the blossoms." I have had some experience in a buckwheat and clover section, and I have had the experience of other bee-keepers similarly situated. We have often found that the bees worked on buckwheat during the clover season. In my estimation an ideal buckwheat morning would be an ideal clover morning. It seems to me that, when clover does not yield well, buckwheat may; or if clover is not very abundant the bees will work on buckwheat. I have also found Italian and Carniolan bees less likely to work on buckwheat when they can obtain white honey. This latter has been my experience again and again.

## GLEANINGS FROM THE PACIFIC COAST

By PROF. A. J. COOK.

#### SOME HONEY IN CALIFORNIA.

While the cool delightful spring was unfavorable to honey production in most parts of our State, yet in some of the inland canyons there has been a good honey crop. In one section near Santa Ana, the product has been measured by the carload. Could we have had in May and June the warmth that has come to us in July we should have had a tremendous production. It all depends on the weather. Warmth, no less than water, is imperatively needed.

#### PROPHECY FULFILLED.

This year has been very cool in most parts of our State. This has been so universal that in most parts of the State there will be a very light crop. In some interior valleys where warmth has prevailed, there has been harvested a fine crop.

In the Imperial country, as I learn, they have harvested honey by the carload, though the region is very new agriculturally and also apiculturally. I feel sure that these hot interior irri-



gated regions of our great West will prove banners for the bee-keeper.

#### BEES EARLY RISERS.

I have always been a very early riser, and at the present time I am often at work in my yard before it is light, that I may avoid the heat of the day, as the past month has been unusually warm in all Southern California. The house of my next neighbor, Mrs. Kinney, a short distance from my own, has had for years a flourishing colony of bees that go in and out close beside the great chimney on the south of the house. Every morning, before daylight, the bees are out in force, and one would almost think that a swarm was issuing. They are active all the day, but at no time are they anywhere nearly as busy as at this early morning hour. I am glad that the bees have learned the joy of outdoor life in the early hours of the morning before the sun has come with his blistering heat.

#### FERMENTATION OF HONEY; A NEW TROUBLE.

To-day comes a letter from Mr. Henry Perkins, of Calexico, a place to the very south end of the great Imperial Valley, which is burdened with a new complaint. He writes: "Can you give me a remedy for honey souring in the hive? This condition has developed in quite a number of the colonies in the past week. It begins with a few small air-bubbles in the cells, which increase in size and number until the cells are full, and a perceptible movement is obvious. This honey is very thin and sour, and the bees cease gathering and die off very rapidly. I notice that all honey is very thin, and ripens very slowly. The weather is exceptionally humid." Mr. Perkins wonders if the bees might not be fed syrup that contained some anti-ferment, in the open, and thus the fermentation be stayed. He naturally desires some speedy advice.

Since the researches of the great Pasteur, of France, we are entirely familiar with the cause and natural history of fermentation. All sugars, if very dilute when in solution, are the best pasturage for micro-organisms, and these bacteria are ever ready to take possession of such syrups. Vinegar is a result of just such action. Our unripe honey illustrates the same truth when it sours, as it is likely to do, in the presence of these ferment germs. The spores of these minute vegetable germs are always in the air; and if the weather is warm and close, then these germs thrive vigorously, and souring is always to be looked for. In the action of these germs, not only is acetic acid produced, but, as surely, carbon-dioxide gas. Barrels of unripe honey are likely to burst from this cause, as I once witnessed in the warehouse of our old friend Newman while I was visiting Chicago.

Heat, humidity, and thin nectar are then the sure requisites of fermentation; and the fact of these conditions explains all, in the present instance, in Mr. Perkins' apiary.

#### AND YET A PUZZLE.

The strange thing is, why does not the heat of the hive ripen the honey, and thus make it no fit place for the bacteria? Can it be possible that the depressed basin, below the level of the sea, to-

gether with the inordinate humidity, prevents evaporation, and so the honey fails to ripen, and fermentation is the result? If this is the case we may hope that the humidity will be of short duration; and with the return of the usually dry atmosphere the honey will ripen, and the sour honey will be no more. Of course, such honey is not good food, and we can not wonder that the bees die. Would it not be wise to extract this honey as soon as noticed, and ripen it artificially, and so save the bees? This can be determined only by experiment. By using great care it could be heated enough to kill all the germs, and it might be safe to feed it back to the bees after fermentation has ceased. Surely here is a good chance for Mr. Perkins to try some research work on his own hook, which may be of use to him and his neighbor bee-keepers. I do not believe it would be possible to correct this by feeding medicated syrup. It would be nice work to gauge the germicide so as to cure and not kill.

I hope that we may hear from Dr. Phillips, Mr. Dadant, and others in this matter. Has it been experienced before in other sections and in other apiaries? how long did it continue? was there any cure discovered? Surely these are timely and pertinent questions.

#### THE IMPERIAL VALLEY FOR BEE-KEEPERS.

It will be remembered that I have spoken in praise of the regions of Imperial and Coachella for apiculture. These are in the depressed valley where the great Salton Sea now holds the fort, and will till it all evaporates, which will take some years. I think this region very favorable for bee-keepers, as there are many of the best of our honey-plants grown in increasingly large quantities, such as alfalfa, melons, asparagus, and fruits of all kinds. Again, this region would be an arid desert, as it was only a few years ago, except for water and irrigation, and so the abundant water from the Colorado for Imperial Valley, and from artesian wells in the Coachella Valley, must always be used, and so there will always be the vigorous vegetation which is a *sine qua non* for nectar secretion. Again, the weather is always warm and almost always dry—that is, the moisture content of the air is very slight, and so the flowers will not hold back the nectar as they are wont to do in the cool seasons that come to all parts of our country. So, like parts of Colorado, Arizona, Utah, Nevada, and the San Joaquin Valley, of our own State, we may expect a certain honey production, or more certain than in any other part of the world where these conditions do not prevail.

WE are glad to be able to announce that there is likely to be a State organization of bee-keepers in Mississippi. Mr. H. E. Blakeslee, Commissioner of the Department of Agriculture and Commerce, Jackson, Miss., is making an effort to get the names and addresses of all the bee-keepers in that State, of which he has at the present time about a thousand. A meeting will be held in Jackson at 10 A.M. on Monday, Nov. 2, for the purpose of perfecting the organization.

## CONVERSATIONS WITH DOOLITTLE

### WINTER PREPARATIONS.

"I was told the other day that you believe that September is the month in which to prepare bees for winter, if the best results are to be secured the next season. This was something quite new to me, so I have come to have a talk with you. It is so different from what I have been practicing that I had my doubts in regard to it."

"Well, Mr. Grant, I believe that the most of our bee-keepers wait until it is too late in making any needed preparations for winter. Wintering is one of the great problems in the northern portions of the United States; but there are some things regarding the wintering of bees which are applicable to all portions of North America, if not to the whole world."

"But you would not recommend such a thing as cellar wintering, as you practice it, to our friends in the South, would you?"

"No. In fact, this early preparation we are to talk about will have very little to do with where the bees are to be wintered, but, rather, about the preparation of the colonies. One of the old veteran bee-keepers of the time when I first started in apiculture said, in a convention which I attended, that the time to begin preparations for the honey-flow is the season before. Now, we shall have to modify this but little to have it apply to the preparation of colonies for wintering, for, surely, such preparations place the bees in the best possible condition to be in readiness for the flow of nectar when it comes the next season. All of the old stereotyped advice of the past has had to do with the wintering problem along the line of whether the hives should be packed or unpacked; whether the bees should have ventilation at the top or the bottom of their hives; whether there should be much moisture in the cellar or great dryness; whether the cellar should have sub-earth ventilation or ventilation by means of a tall chimney; whether the colonies have sufficient honey, or stores of sugar syrup with no pollen, etc. But little stress is laid upon other conditions such as age of the bees, the age of queens and their general good qualities, the proper spacing of the combs, etc. Sufficient stores, also, should be included as one of the necessary preparations to be made at this time of the year."

"Then you think that September is the time to do these things?"

"Yes, or earlier. As a rule, wintering preparations are deferred until late in the fall, when it is too late to cure any defects that may be discovered in the general condition of the colony, except, perhaps, the giving of stores where colonies are found wanting. I believe it to be a fact that, if a colony is provided with a vigorous queen, plenty of bees of suitable ages, and ample stores within easy reach, the other so-called essentials may be in a measure disregarded in almost any locality except where winter holds supreme for five or six months without giving the bees one single chance of flight."

"When should this preparatory work begin?"

"You can not set any day of the year, but it

should begin immediately after the close of the honey harvest, and continued, if necessary, and, whenever the weather is favorable, well into the first week or two in October. I would first requeen, with the best stock in the apiary, all colonies whose work had shown during the season that their queen was not of the very best order; and I would not allow prolificness in the production of bees to be the only essential to go by either. Together with prolificness and great honey-gathering qualities should go perfect comb-building in the sections, white capping of the combs, little inclination to build brace-comb from the surface of the combs in the sections to the separators, and the bees should not daub everything over with propolis."

"Do you expect to get a bee perfect in all of these respects?"

"It may not be possible to reach perfection in all of these things; but unless we set our ideal high we shall be drifting toward a lower level all the while. I know that, with such high ideals before us, very many of our best queen-breeders have bees to-day which would have been called *perfect* by those of half a century ago; and if we improve in proportion for the next half-century, those who are on the stage of action at that time will have bees which we would now pronounce perfect. Occasionally there will be a colony headed by a queen whose bees are inclined to store the larger part of the honey in the brood-combs, or, in other words, they will gorge the brood-nest with honey, so that late in the season there is little room available to raise young bees. The old bees soon die off, and spring finds the colony heavy with honey, but so reduced in bees that half of the harvest is past before the colony can be gotten into shape to work in the sections. This condition can be remedied now with but little work—first by changing the queen for one of the young ones from the best stock; and, second, by removing two or three of the frames of solid honey and inserting in their places frames of empty worker comb. A little of the honey at the lower side of the remaining frames should be uncapped to give the queen a chance, which she will not be slow to improve, as she is young and vigorous. If this is done the last of August or the very first of September, two sets of bees will be reared and a suitable force provided whose period of life will be extended far into the spring. I have known such bees to live and do good work well into the latter part of June, and always until the colony becomes strong enough to take advantage of the flow of nectar from white clover. All colonies deficient in stores should be fed, rather than wait till so late that they will not properly surround the brood or clustering-nest with well-ripened food. If done thus early in the season, the feeding will not only provide the necessary stores for winter, but stimulate, to the rearing of a little extra brood, the bees from which will help to carry the colony into the next spring in perfect order."

"But all of this will require a lot of work?"

"Not so much as you think, for the little attention at this time to these details will lay the foundation for a good crop the following season, and is really work which pays fully as well as if not better than any thing else which we do throughout the whole year."



# GENERAL CORRESPONDENCE

## CLEANING COMB HONEY.

**How to Make a Table for the Purpose, and How to Avoid Scattering Bee-glue where it does Not Belong; Plain Sections Best for Scraping.**

BY J. E. CRANE.

I said to my helper a few days ago that I was expecting to write an article for GLEANINGS on cleaning comb honey. "Well," said he, "there ain't nothing to do in cleaning honey but just to scrape off the propolis. That is all there is to it."

It seemed a good deal so to me; but when I remembered the slow sticky job of years ago, and the cleaner and more rapid way we now do it, it looked as though there might be something said that would be of *some* value, at least to beginners.

First, we want a suitable bench or table. The one described in the A B C and X Y Z of Bee Culture seems sadly defective, as it makes the operator stand on his feet, which alone would tire me without doing much work. A table that one can sit down at seems to me more desirable.

One of the best I have ever seen was described in GLEANINGS, I think, by Mr. P. H. Elwood, of Starkville, N. Y., a few years ago. I made one somewhat after his description, and it is about as follows:

Make a table of planed boards,  $3\frac{1}{2}$  ft. long by  $2\frac{1}{2}$  wide, with legs short enough so that, when you sit in a chair, the top of the table will come just above your knees. Around the top, nail a four-inch board for a rim which will extend three inches above the upper surface of the table. Two strips, one inch by  $\frac{7}{8}$  inch, and the length of the table, are to be nailed six inches each side of the middle of the table. Now get two aprons of denim or other strong cloth, made so one end can slip over your neck, like the leather apron of a blacksmith, with the lower ends tacked to the end of the table. Now place a super of sections on the two cleats which support it one inch above the table, and with the apron over your neck, a sharp knife, and your sleeves rolled up, you are ready for business.

The apron and table catch nearly all the propolis, and the cleats hold the super out of the way. It is not necessary to rest the section on the table, but hold it in one hand and your knife in the other, and then you can make the propolis fly. I like a good heavy jack-knife for this work, and it should be of the best steel, and kept sharp to do the best work. The propolis scrapes off better in cool weather than when it is hot, and after the sections have been off the hives a few weeks than when first taken off; but as we can not always wait we find that a little dish of water on the table, to dip our knife into frequently, will help much in keeping the propolis from sticking to it.

Before sitting to the table to work I take five supers, and with an old steel case-knife I scrape the top of the sections clean, and then scrape the bot-

tom of the super free of wax and propolis; and as the sections are cleaned they are placed in clean supers. After the sections are removed from a super the entire super is cleaned of propolis. I have seen sections cleaned and then returned to a super to be again stuck up before using. Some weigh and pack the honey as cleaned; but I prefer to put the sections back in supers by themselves and the separators in other supers by themselves.

### GRADING AS WE CLEAN.

If we can, it is well to sort as we clean, placing the best grade alone in the same supers, seconds by themselves, and the very light ones in supers to go to the extractor. Another grade should be made if necessary.

All combs containing cells of pollen, not covered by honey, or containing cells of brood, should be put in a super or supers by themselves, as worms, or the larvæ of the wax-moth, are almost sure to develop in them and ruin them unless watched; and when a few sections have worms just beginning on them, place in a stone crock and on top of them a dish into which pour a teaspoonful of carbon bisulphide and cover tight for twelve hours, after which they may be set aside with safety until you get ready to dispose of them as you think best.

### THE WORK OF DIFFERENT COLONIES IN THE SUPERS.

In cleaning ten or twenty thousand sections we are sure to find some imperfect ones, and others that have brace-combs so attached as to make them surely leak when detached from separators, and there are many others that have been set to dripping by careless handling. For these I have two tin traps or pans,  $18 \times 24$  inches, and  $1\frac{1}{2}$  inches deep, set on a table. Over these I stretch galvanized wire screen on which I place any sections that drip, until they have run dry, when they may be cleaned of honey and used or sent to the extractor.

One of the most difficult things in cleaning honey is to keep propolis in its place. With some help it will get all over the floor and over your honey-house, out on the walk, into the kitchen of your house, and even into your parlor, and you wonder where it all came from. Even with the greatest care it will be well, when you hear the dinner-bell, to scrape your feet carefully or change your shoes, or the good wife may meet you with a frown instead of a smile.

Heavy paper laid on the floor before beginning to clean honey is a great help in cleaning up when through, for you have only to take up the papers and burn them, and your floor is about as clean as when you began.

At its best, cleaning sections is apt to be somewhat monotonous. It is better to work at it by the job rather than by the day. A watch on the table beside or in front of you is sometimes helpful; and if you can clean 120 an hour you can at least clean 1000 a day; and if you have only 12,000 to clean you know that two good hands should go through it in a week.

There is a way by which the monotony of cleaning honey may be largely done away with providing the honey is of your own production and from your own bees, and you do all the work yourself. Just mark on each super as you take it off, the number of the hive, and whether it is

first, second, or third super. Then as you clean each you know just where it came from. Keep a record of your hives near you also for reference if desired.

Now notice the constant variation in the combs built by different colonies. Here is one where the combs are of snowy whiteness, almost every one filled perfectly, so you will prize very highly the colony that produced it; and, if possessed of other good qualities, it may be just such a one as you may wish to rear queens from next spring.

The very next super may be filled with combs with more or less pollen in them. What is the cause of this? Were the bees queenless while filling the super, or was it because of a slovenly way of scattering pollen through their hive? A glance at the record will show. If they had a queen she should be blacklisted. Here is another with various irregularities, with some of the combs twisted and attached to separators and plenty of brace-comb.

We soon find another with thin lean combs, some of them hardly finished, but, oh my! how every section and separator is stuck up with propolis! It takes twice as long to clean such sections, and, when finished, they do not look well. Evidently the bees of the colony that produced it were not lazy, but their industry was misdirected. Better place the queen of that colony on the black list to be removed at the earliest opportunity. After finding half a dozen supers fairly satisfactory we find one with more or less brood in the central combs. Why is it there? Was the brood-chamber crowded with honey or was it owing to a lack of honey when the combs were built, or an unusually prolific queen?

Here is another style of sections we are pretty sure to come across. They are well filled, well capped over, but those cappings are badly stained or discolored with dark wax or propolis, or what not. Shall we place the queen of such a colony on the black list too, whose workers do not do just such work as pleases us? It grieves me that we must visit the misdeeds of the children on the innocent queen mothers. Well, we need not blacklist the queen whose workers stain their combs badly, for I have found a way by which it can be largely prevented.

We may think of a large pile of supers of honey to be cleaned, not as a great job of disagreeable sticky work, but, if properly numbered, as a great volume, each super a page, giving us the history and character of each colony so far as it relates to storing surplus honey. To me the opening of this volume, and reading it page by page, is a great source of pleasure as well as instruction. I am usually glad, though, when I am through.

I have said nothing about a cleaning-machine, as I know little that can be said for them. I find I can clean from 100 to 120 per hour, although the weather has been intensely hot, and the sections just removed from the hives, and I doubt if a machine could do more.

I believe the use of plain sections, perhaps, simplifies and helps the rapid cleaning of sections more than any other one thing; and if there was nothing else to be said in their favor this alone should be sufficient to make them popular.

Middlebury. Vt.

[We understand from the description that the

super is placed in the middle of the table while an operator sits at either end. Some prefer to stand up a part of the time at least; and if the table were made just right for standing, chairs could still be used if extensions were nailed on the legs.

Mr. Crane does not say just how he uses the scraping-knife. We infer that he makes a sort of sweeping motion toward the table, causing the particles of propolis to fly in that direction.

We suggest that our correspondent have some nice photographs showing the table, the operators at work, and the manner of holding the section in one hand, and the use of the knife in the other.

We would hold this article for the photos, but the subject matter is so seasonable that we have thought best to publish it at once and the photos afterward.—Ed.]

## MILKWEED AS A HONEY-YIELDER.

### Is the Plant Detrimental to the Bees?

[The following note was received by Professor Surface, who, thinking that it might be of interest to our readers, sent it on to GLEANINGS, together with his answer.—Ed.]

*Prof. H. A. Surface—dear Sir:*—Watch closely the honey from milkweed. Last year it yielded a good crop of honey. Locality may make some difference, but it is valuable here as a honey-plant. L. B. WHITNEY.

Covington, Pa., June 24.

[Replying to the above, Prof. Surface says:]

*Mr. L. B. Whitney—dear Sir:*—I appreciate your communication upon this subject, and would call your attention to the fact that milkweed is very objectionable as a honey-producing plant for the reason that the pollen-bearing blooms of the plant pull off and stick to the legs of the bees and disable them, and cause the others in the hives to throw them out, and they are thus killed in great numbers. If you will look closely at bees that have been getting honey from milkweed you will find little yellow appendages on their legs. These are parts of the flower known as anthers, or pollen-sacks; and as they stick so closely as to disable the bees they eventually cause the death of the honey-gatherer. Thus the value of milkweed as a honey-producer is to be more than questioned, and I would recommend mowing it down as a matter of preservation of the bees. Whether all species of milkweed have the power of injuring bees by the pollen-sacks adhering to the legs or not, I do not know; but it is true of the low kind with pink flowers which especially grows in swamps.

H. A. SURFACE,  
Economic Zoologist.

Harrisburg, Pa., June 26, 1908.

[At the convention of the Northern Michigan Bee-keepers' Association, held last April, one of the members mentioned having secured a fine crop of honey from the milkweed. He reported the flavor as being pretty strong at first, but it became milder until it was but little stronger than white-clover honey. The color was so light that he received 1½ cents more per pound for it.—Ed.]



## THE TROUBLES OF AN AMATEUR BEE-KEEPER.

### A Fresh Start with Bees.

BY F. DUNDAS TODD.

The middle of August found me in Southern Oregon; and before I had moved into my new home I had bought a "stand" of bees—not a hive, but simply a box made out of 12-inch lumber about 14 inches high. I ought to have photographed it as I first saw it standing on a huge drygoods-box and surmounted with a double-tier section-super that overlapped it everywhere. Bees were flying out and in of all sides of the box, as these had conveniently cracked from top to bottom. Examination showed a hole an inch in diameter at the top of the hive, and through this the owner expected the bees to enter the super and lay up a store of sweetness for him. Because they would not, and as he was going to move, he would sell for a dollar, and I handed him the money.

Now, I ought to be able to tell how simply and perfectly I transferred that box hive to my own yard; but instead I must confess I acted like the veriest greenhorn, and made a mess of it that was humiliating. The trouble was, I had no stand, so I wanted the drygoods-box too. So one night I took four fair-sized nails, a hammer, some mosquito-netting, and a wheelbarrow, and started to fetch that box hive. With the netting I wrapped the hive as it stood, covering all the



AN ORCHARD SCENE IN SOUTHERN OREGON.

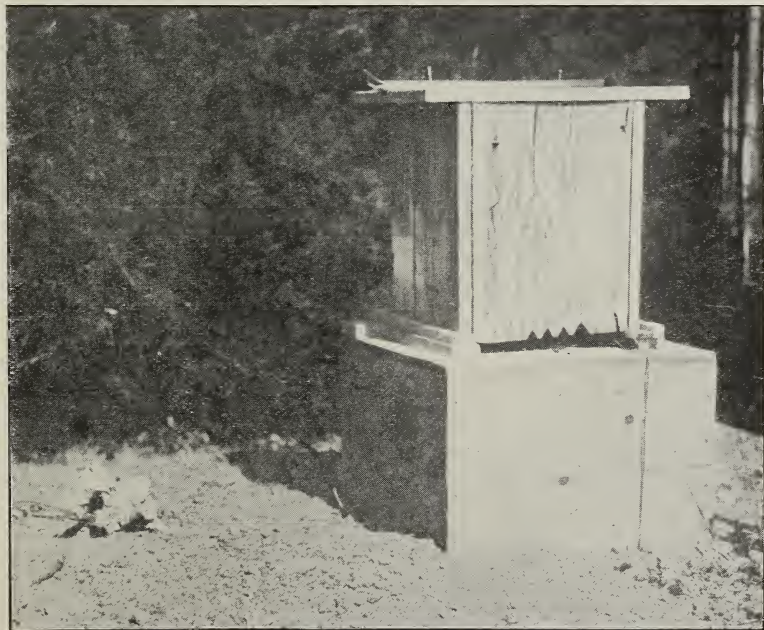
Note the bee-hives under the trees.

entrances and exits, then proceeded to toenail the hive to the box. Then my boy and I lifted the drygoods-box and hive on to the barrow. Grasping the handles of the latter I started for home; but before I had moved a foot the wheel struck a snag; the nails gave way, and that confounded box hive turned several somersaults over the wheel. The bees may have been startled. I certainly was. A hasty examination with the lantern showed the hive on the ground upside down, with thousands of bees running all over it. Prompt action seemed a necessity, so I dumped the drygoods-box on the ground, grabbed the hive, landed it right side up on its old stand, and then skipped to a certainly safe distance. I carried a few troubles away in my fingers, just as souvenirs of the occasion.

Next night I acted sensibly.

I spread a large square of two-fold mosquito-netting on the big box, lifted the hive into the center of it, gathered the slack up round the sides and tied safely with a string. Now I could handle the box of tricks without anxiety. The engraving shows what it looked like in my own yard. I felt I would have no troubles over this hive until spring, as bees in this valley get no winter protection whatever.

However, trouble followed me on the old schedule, but with a new variation—it always does act that



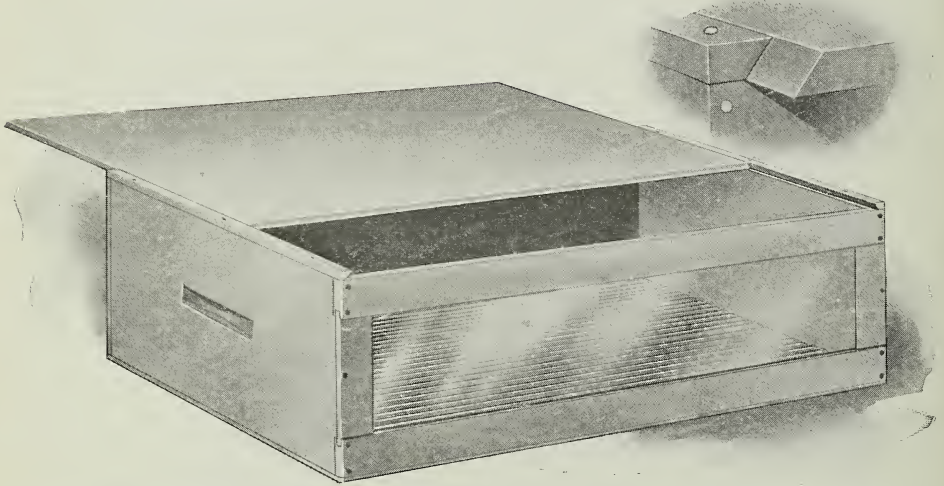
THE TODD APIARY, MEDFORD, OREGON, AS IT WAS IN OCTOBER, 1907.

way. One day I saw a worm of some kind lying in front of the entrance, and I wondered what it was. Once more to the books, and I began to suspect the beeswax moth. Enquiry soon let me know that this insect was exceedingly prevalent in this region; in fact, it seemed to have headquarters here. What was to be done about it? I decided to transfer to a frame hive, but I did not have one beside me; so, having lots of leisure on my hands, I proceeded to make up a couple in a crude way according to the style used by Mr. Hand, in whose articles I had become intensely interested, and made the transfer Nov. 6. Rather late, you will say; but let me assure you the sun was shining brightly, and the thermometer registered 65 degrees in the shade. At date of writing, a month later, the bees seem to be all right, so I have no real material troubles on hand just at present that I know of; but I am struggling

the doctor, but all the same I will Italianize in the spring, because, if they develop the demonical traits that are characteristic of those in Marengo I should never be able to attain the sunny countenance for which the oldest, yet youngest, bee-keeper in America is famous. And since there will be no female restraining influence in my bee-yard my language might become more picturesque than it is now when my sweet pets get their innings, and score both hits and bases.

Last night I dreamed a wondrous dream. Somewhere I was traveling in a train, and I got into conversation with the conductor. Our subject was bees. He told me the only place in Oregon to keep bees was near Mt. Hood, and that he had one hive there that gave him 4000 pounds of honey each season. I felt sorry I ever woke up. Wouldn't you, too?

Medford, Oregon.



A NEW SHIPPING-CASE WITH SLIDING COVER AND CU-HION PAPER TO PREVENT THE BREAKING OF SECTIONS.

very bravely with other men's ideas and the conditions in this valley so as to head off trouble in the spring, when I purpose endeavoring to smash all records for building up increase. Of course, I shall probably fail, but will have lots of fun trying.

I wish somebody would tell me the kind of bees I have. They are not Italians, and I don't think they are Germans. Imagine an interval of 30 minutes to have passed since I wrote the last sentence. I have just returned from visiting a couple of my neighbors' yards, where I have inspected the color of the bees. I found one hive where the bees were very black, but most others very closely resembled mine. Just fancy I am, as a bee-keeper, in the same class as Dr. Miller, for my apiary is stocked with hybrid bees. Of course, he has about 300 hives while I have only about half of one; but in my early youth I was taught that the size of the offense did not count so very much—it was the quality.

My bees seem to be more gentle than those of

## A NEW STYLE OF SLIDING-COVER SHIPPING-CASE.

BY E. R. ROOT.

Every now and then there has been a call for a shipping-case with a sliding cover so that the case may be opened, a section or two taken out, and the case instantly closed. The trouble with the ordinary case with the nailed cover is that it is not easy to open for the purpose of inspection. When it is put on the counter to retail from, the nails must all be drawn and the cover laid on top. This has its objections, because the cover gets pushed aside, flies and ants get inside, the sections become soiled, and the public does not want them. To make a sliding cover in the ordinary way requires projections that will split off in shipping. It is important to have the covers so that the top surface of the case may be perfectly smooth, so that, when the cases are piled one



on top of another, there will be no danger of knocking off the projections.

The accompanying illustration is a form that has been suggested by some of our own men, and we believe it very nearly overcomes, if not quite, all the objections that might be made against a case of this kind. The sketch in the upper corner shows how the cover is held in place.

The question might arise, "Why not make the end pieces a little deeper, and grooved out at the top edge so that the whole end will be solid instead of nailing on extra cleats?" First it would increase the cost of the end boards, and, worse yet, there would be danger of splitting off at the grooves; and, second, if the cases were nailed up carelessly the cover might fit badly, and then it would stick. By having the beveled cleats made separate, and held in place by means of nails, we retain all the advantages of the old cover that was nailed on, and yet have a cover that will slide on and off easily. Even if the cover should stick the nails could be drawn as in the old style.

The new case should be nailed up as before, and the two holding cleats and the cover should be put in place. One of the cleats should then be nailed squarely in position. The cover should be pushed toward the nailed cleat, when the other one should be put in place. If it be not crowded too tightly against the cover there will be no sticking nor pinching; indeed, there can't be any.

It will be noted that corrugated or cushion paper has been substituted for the no-drip cleats. Experience shows that many bee-keepers are careless in placing these cleats. A large number don't know what they are for. Sometimes they put them *on top*, and sometimes they leave them out altogether.

The trade is working over more and more to this paper, for all experience shows that honey ships better on it. Its use is obvious, and it can not be put in wrong. It is the same paper that is used around bottles of medicine and all other fragile objects. If it is a good thing to protect glass, it goes without saying that it will prevent a great amount of breakage of combs in shipping-cases.

This kind of corrugated paper was suggested by Mr. J. E. Crane and others some two years ago, and since that time it has been coming more and more into use. Of course, corrugated paper would have to be used in the paper trays to hold any honey that might drip.

We have subjected a case having corrugated paper containing sections, and a case of the same lot of sections having no-drip cleats, to all kinds of rough-and-tumble bumping and dropping. The former stood the treatment much better than the latter. We believe the use of this cushion paper will save a lot of broken comb honey, some unsatisfactory adjustments with the railroad companies, and some bad feeling between the producer and the commission man.

We made up a number of these cases, and sent them out to commission men and honey-dealers in order to get their opinion of the case, and the following are some of their replies:

We are this day in receipt of your letter of the 14th inst. and sample honey-case, with stated contents. The entire package is very pleasing to the eye; and if the cover will work on all cases as on this sample it is certainly a most helpful device. One nail

half an inch in length would be quite sufficient to hold the cover in place on the smaller-sized case;  $\frac{3}{8}$  inch might be sufficient.

As to using the corrugated paper in place of the no-drip cleats, we do not care to give an opinion aside from the fact that it is worth trying. It would have the advantage of not shifting in the case, and any one could be trusted to insert it who could be trusted to do any thing about crating honey.

Chicago, Ill.

R. A. BURNETT & CO.

We consider this case far superior to the others, for the simple reason that it will take less time to open it up by simply pulling out the one nail and sliding the cover off, and the same may be said as to closing it again, instead of driving in six or eight nails. One stroke with the hammer will perfect the job here, therefore we think that, as you can furnish this crate at no higher cost than others now in use, bee-keepers should take hold of this and adopt it immediately.

In regard to corrugated paper for the bottom of the crates instead of no-drip cleats, I beg to say that quite a number of prominent bee-keepers have been using it right along. The no-drip cleats would work all right if they were nailed to the bottom of the crate. Most bee-keepers seem to forget this, simply laying them in loose, and then, while the honey is in transit, these narrow pieces of wood slip, and we have found them at times to be all at one end of the crate, thus causing some of the sections of the honey to break down. Even at a slight additional cost we should think the corrugated paper far superior to the no-drip cleats on account of less work, and also on account of not taking any risk of having the combs broken down.

New York, N. Y.

HILDRETH & SEGELKEN.

I like the slide part, but I object to corrugated boards, because, to my notion, there is an inconvenience when honey is broken. In packing you would either have to have corrugated boards or stumps. If you have no-drip cases, if nailed tight they can easily be washed out. I may be a little wrong, but this is my experience with corrugated boards.

Cincinnati, Ohio.

C. H. W. WEBER.

Yours is at hand in reference to new style of shipping-case. The case was received yesterday. We have looked it over, and think it will be received by grocerymen, and others retailing the honey, as an improvement. The sliding cover will be used to keep the honey covered up and away from flies and dust. The other cover would not be used this way as much, as it would be knocked or brushed off from the top, and no time would be taken to replace it.

Syracuse, N. Y.

F. A. SALISBURY.

Your letter along with sample of shipping-case is at hand. I am delighted to see the neat appearance, and heartily endorse the improvement of making the cover in one piece with a slide. I would also recommend, beyond question, the corrugated paper, as it is desirable in every way.

Philadelphia, Pa., July 17.

WM. A. SELSER.

Your circular letter in regard to the improved shipping-case is received; also the sample case. I would say that I have always been an advocate of corrugated paper for shipping-cases, instead of the no-drip sticks. They are more easily put in place, and, as you say, form a cushion for the sections to rest on. That is no small item. The cover is a step in the right direction—something to retail from, and have a cover that can be put on and taken off at each sale, so there will be "no flies on it."

Remus, Mich., July 21.

E. D. TOWNSEND.

The new shipping-case with sliding cover is at hand, and I have examined it very carefully. I am delighted with it, and I think it certainly will take well with the bee-men. As to the corrugated bottoms, I have felt that we were behind the times in not adopting it long ago. I have had honey arrive here in much better shape where the corrugated paper was used. My wishes would be, the sliding cover, corrugated bottoms, and then crate in smaller lots so they can be handled to better advantage; and if the cost increases, I am sure it will be met all right.

Indianapolis, Ind., July 15.

WALTER S. POWDER.

## BEE-KEEPING IN AUSTRALIA.

### An Interview with the President of the Victoria Apicultural Association.

*Continued from last issue.*

"We have read something about your pollen-famines in Australia; do we understand that your bees die for want of pollen at certain seasons?"

"Yes. Breeding, even in mid-summer, comes sometimes to a complete standstill, owing to a scarcity of pollen. We sometimes have periods in mid-summer when there will be nothing but

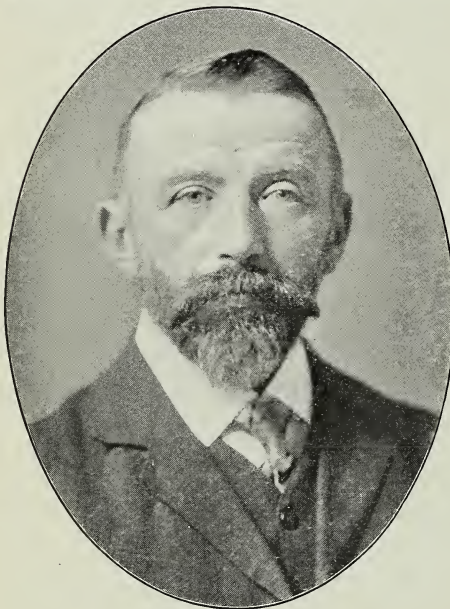
eggs in the brood-combs although there may be plenty of honey."

"Do we infer that these eggs do not mature into larvæ for want of pollen?"

"I am of the opinion that eggs are being continually laid to a limited extent, and the older ones being removed by the bees, instead of being supplied with larval food which they can not procure."

"Why do you not feed rye or bean meal, or some of the other artificial substitutes?"

"We have tried all the known substitutes on a large scale; and although we could get a great amount of brood, we could never get a good strong force of field bees, or at any rate no satisfactory yield of honey with bees reared with artificial food. The bees fell away, were short-lived, and consequently they were unable to gather much honey."



F. R. BEUHNE.

"Then you find, do you, that natural pollen furnishes you a stronger and longer-lived bee than any artificial substitute?"

"Yes. But some seasons even the natural pollen appears to be abnormal or deficient in protein; and the bees, in consequence, are short-lived. If this deficient or poor pollen is stored in autumn it means short-lived bees that are reared on it in the fall and in the spring, with the result that the whole colony dwindles to nothing, at a time when it ought to get stronger every day. On one occasion I lost 200 colonies out of 215 from this cause."

"It is possible that this may explain why we bee-keepers in America have severe cases of spring dwindling, even when weather conditions are apparently favorable. While we do not know that we have pollen-famines the same as you have, yet we probably have a scarcity of good pollen or a quantity of poor pollen. I suppose you are

prepared to substantiate every statement you have made above?"

"Yes, I am prepared to do so, with some reservations on scientific points. Your readers would be greatly interested in an address delivered by Dr. Thomas Cherry, who is an eminent bacteriologist, and at present Director of the Department of Agriculture of Victoria, Australia."

"How do you prove that the bees in the cases mentioned were short-lived?"

"I tested this point by exposing bees in large queen-cages to the night air, using six cages from a dwindling apiary, and six others from an apiary at a distance, which was in a normal condition."

"Have you ever had your pollen analyzed?"

"Yes; and I have with me reports of analyses of Australian pollen which I intend to submit to Dr. Phillips for comparison with the analyses of American samples."

#### THE TWO-QUEEN SYSTEM.

"Mr. Beuhne, have you ever tried raising brood from two queens in one colony?"

"I have."

"Can you keep two queens in a colony without the use of perforated zinc—one queen on either side of it?"

"Yes, I have done so for years."

"How do you do it?"

"I have no difficulty in keeping two queens in any one hive on the same combs provided that one of them is at least two years old."

"Suppose the other queen was also two years old."

"My experience proves that, after a queen has attained a certain age, beginning when about two and a half years old, she is not considered as a rival by any other queen introduced or raised in the hive."

"We may assume from this, then, that two queens can live peaceably in a hive, whether one or both are raised there or not, providing that one of them has arrived at or has nearly reached the supersedure age. Is that correct?"

"Yes, I believe so."

"Do I understand you, Mr. Beuhne, further, that, at the time mentioned, two queens may be used in a hive, provided both of them are properly introduced, and providing, also, that one of them is not less than two and a half years old?"

"Yes, I believe so, excepting during a honey-famine; and during the winter months the older one will disappear."

"Well, now, Mr. Beuhne, are there any conditions at any time when, in your judgment, it is an advantage to have more than one mother to a colony for the purpose of rearing brood?"

"I have experimented along this line ever since 1893, and have come to the conclusion that there is no practical gain in bees or honey by having two queens in a hive. Early in the spring, spare queens are rarely on hand; and even if such should be the case, a queen can usually lay more eggs at this time of the year than the workers can attend to—the trouble being, not the lack of eggs, but lack of worker forces to take care of them."

"Do you ever consider it an advantage to have a certain number of colonies supplied with two queens to supply certain colonies with only one





F. R. BEUHNE WATCHING THE FLIGHT OF BEES AT A HIVE IN THE HOME YARD IN MEDINA.

queen that may unexpectedly become queenless?"

"Yes. The two-queen system is very useful in such cases; but the principal use to which I put it, and which I consider very important, is the raising and mating of young queens in strong colonies with an old queen, the young laying queen being removed whenever required, and a queen-cell being inserted to repeat the operation; but a virgin should not be in such a hive till at least a week after the removal of the young laying queen. This is very important. The same method may be practiced in nuclei. An old queen continues to supply the eggs for brood while queen-raising is going on."

"We make that a practice in our queen-rearing operations every season. In fact, supersedure colonies are at a premium with us for rearing a large number of fine cells, containing larvae from our breeder. A queen just beginning to fail is worth more to us for cell-building than any young vigorous one that can take care of the needs of a colony without a prospect of another coming on."

"Here too. There has been in my locality a demand for even three-year-old queens, several bee-keepers having obtained such from my apiary for the purpose of introducing them to strong colonies in which to raise queens under the superseding impulse, as in the other case a week

being allowed for the bees to become aware of the change in queens."

"How do you succeed, Mr. Beuhne, in getting early drones from a select breeder in sufficient numbers so that all young queens in the early spring will mate with these selected drones?"

"The only satisfactory way I know of is to introduce those queens, from which we desire to raise drones, to strong colonies of black bees during the winter, having supplied such colonies with the necessary drone comb in the right position in the hive. As black bees will breed earlier in the spring than Italians, we obtain our choice drones much earlier than would be possible with even stimulative feeding."

"We find that our Caucasians will breed a hundred drones to the Italians one. Whether the Caucasians would be the equal of the black bees we could not say; but we believe that your suggestion of putting choice Italian breeders into stocks of bees of strains that will rear more drones than Italians, and earlier than Italians, is a good one. Now, Mr. Beuhne, it has been observed by bee-keepers of both continents and both hemispheres, that, where Italians largely predominate through selection in breeding, if the bees are left to themselves, and if there is some black blood in the locality, all the bees in that locality will sooner or later degenerate back into hybrids

or blacks. Do you account for this by the tendency in the blacks to rear drones in larger numbers, and earlier?"

"Yes, I do. In addition, we must bear in mind that blacks are usually allowed their own sweet will in the way of building drone comb. There is also no check on the age of queens. Under these conditions, and the well-known fact that black bees can raise brood at a lower temperature, it is but natural that the race of bees in a given district should gravitate toward the black race. There is another thing in this connection; and that is, that the black bees (and that would include the drones), being less susceptible to cold, would be out in the air more than the yellow bees."

"I notice by the last issue of the *Australian Bee-keeper* (March 15) some illustrations showing the gearless honey-extractor that you are using at your yards—that is to say, you employ two pulleys and a round leather belt, the driving pulley being considerably larger than the driven ones. What advantage has this over the method of using such gears rather than a positive drive that can not slip?"

"I use the belt-driven gear owing to the liability of cog gear to fracture when driven at such a high rate of speed as is required to extract our thick honey, which, as you may know, runs 12 lbs. to the gallon. The slipping is reduced to a minimum by having the large pulley fixed in such a way that it may be lowered at any time to increase the tension of the belt. A little slipping at the beginning, when first started, I consider an advantage, as it will prevent the breaking of new combs. One great advantage of the belt gear is that it is almost noiseless."

"Do you use a flat or a round belt? and if the latter, what is the size of it?"

"I use a round belt  $\frac{3}{8}$  inch in diameter, such as is used for power-driven sewing-machines."

"How many colonies have you?"

"I have at present 300."

"How far apart are your yards?"

"Four miles and a half in a straight line."

"What are your main sources of honey?"

"Exclusively eucalypts, with the exception of a few plants and shrubs in early spring."

"How does honey from eucalyptus compare with American or European honey?"

"In color it varies to about the same extent. It is of a different flavor, but of a greater density; and I should think, therefore, it would be very useful for manufacturing purposes."

"Have you many unoccupied ranges in Australia not too remote from a market?"

"That is a matter of opinion. All the best bee territory within thirty or forty miles of a railway is pretty well stocked now, but there are immense tracts of native forest yet untouched on account of the distance from railroads."

"Can you estimate approximately the amount of honey that is annually produced in Australia?"

"For the State of Victoria, during the season of 1906 and '7 the number of hives of all kinds was 48,000; and the yield of honey was 3,000,000 lbs., besides 46,000 lbs. of wax. This makes an average of a little over 62 lbs. of honey to the hive."

"What would be your average, Mr. Beuhne, per colony, one year with another?"

"My own average for ten years is slightly over 100 lbs.; but mine is by no means one of the best districts."

## BOTTLING AND PREPARING HONEY FOR MARKET.

BY E. E. COVEYOU.

[The writer of this article, Mr. E. E. Coveyou, who produced 25,000 lbs. of honey this year, is one of the most extensive bottlers of honey in the United States. He has every thing worked down to a fine system to save labor. He has built up a large trade and a big business. His scheme of "rolling" the labels on the bottles and tumblers without touching them is quite unique. The whole article, in fact, is deserving of a careful reading, for he seems to be full of the "tricks of the trade." The best part of it, he is willing to give them to the public.—Ed.]

We have always bottled our entire crop, and bought considerable each season. We also make our hives and shipping-cases; and in order to find time to care for our bees we must have some quick method of performing all of the operations connected with the business, and each year we adopt new ways and means of saving time and labor, and giving better results.

### UNPACKING THE GLASSES AND PREPARING FOR WASHING.

Practically all of our tumblers come in barrels, while our jars are in cases. We can save considerable as we make our own cases; but we would advise any one not in position to make them to buy all reshipping-cases.

To do faster and easier work we have 200 trays holding four dozen tumblers each. These are made in the following manner: The sides are of wood  $3\frac{1}{2}$  by  $\frac{7}{8}$  inch. The bottoms are made of galvanized screen, and are held on by means of  $\frac{1}{2}$  by  $\frac{7}{8}$  inch strips. Similar strips are nailed across the bottom every 6 inches to support the screens. The tumblers and glasses are unpacked and placed in these trays. By the way, the trays are provided with hand-holes in the sides and ends, and, with the bottles, they are lowered into the water in the washing-tank, when immediately the glasses are all out of the trays and in the water in less time than it takes to tell it. They are washed, placed back in the trays, and allowed to drain for a few minutes; then they are placed one on top of another on a drier which is heated by steam-pipes. The hot air ascends through the piles of trays, and the moisture is thus carried off.

### LABELLING.

Now for the labeling. The first thing is the table. It is a board two feet long and 18 inches wide covered with oilcloth. The table-top itself is pivoted on a shaft, so that it can revolve the same as a piano-stool, only it does not rise or lower except by a set-screw which is conveniently located for adjusting to a height suitable for those doing the labeling.

The labels are piled in bunches of about 500 each. One end of each bunch (the end further away) is pasted the same as a writing-pad. (It would be well to put a piece of mosquito-netting on the ends before or when pasting, as this holds the labels together better should the paste become brittle.)

We now paste from four to six pads of these



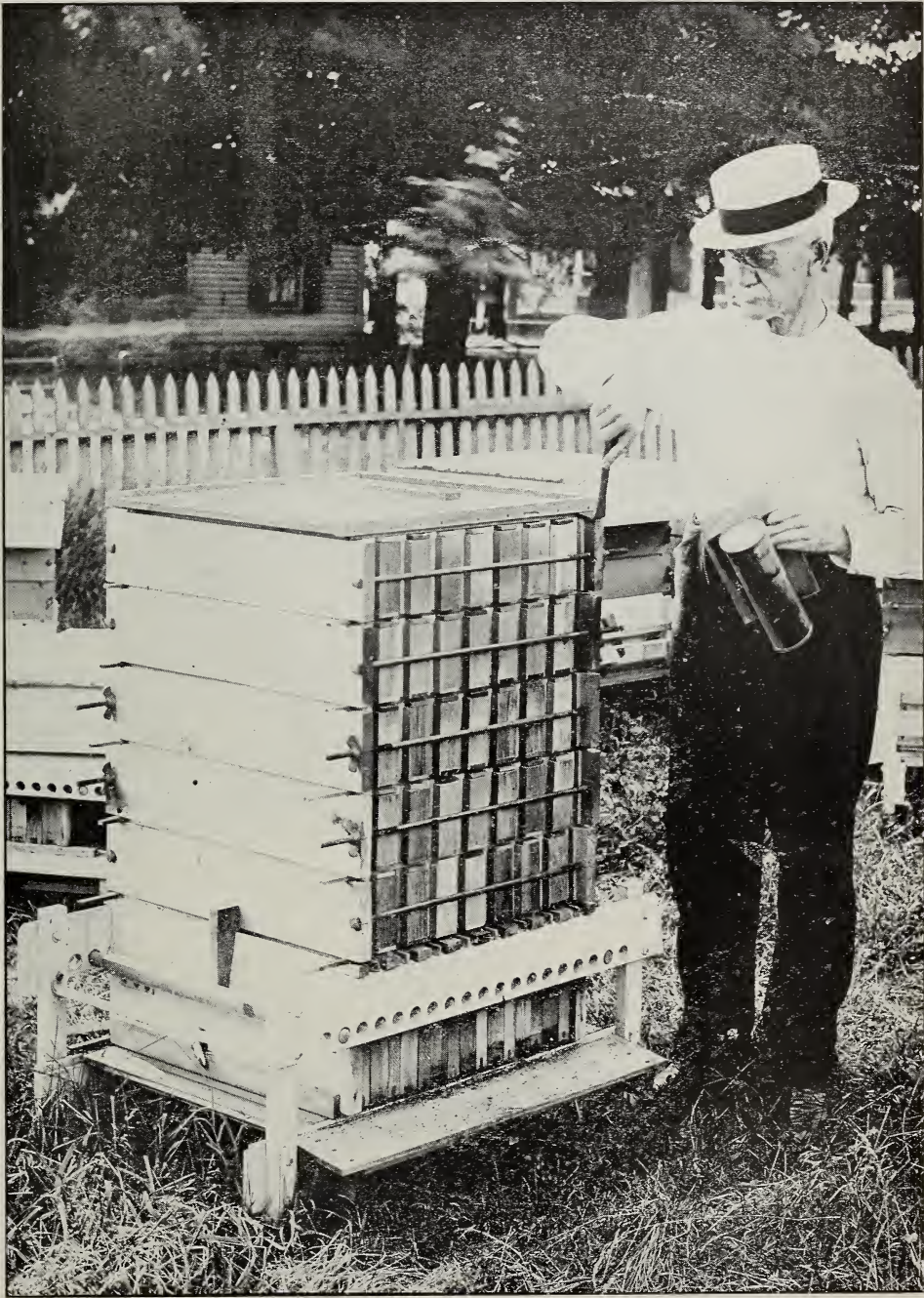


FIG. 1.—MR. ASPINWALL OPENING ONE OF HIS NON-SWARMING SKY-SCRAPERS.

When I visited Mr. Aspinwall I asked him to stand in front of one of the hives in order that our readers might see not only the hive but the inventor as well. He protested somewhat but finally consented, and here he is. He never uses a bee-veil, and says it is not necessary with his hives, because he does not smash any bees, and, what is more, there is no need of it. He has just removed the telescoping cover, and is now proceeding to pry up his honey-board.—ED.





FIG. 2.—GENERAL VIEW OF THE ASPINWALL NON

This yard is located in the heart of the residence of a city of 15,000 inhabitants, and directly in the rear of Mr. Aspinwall's residence. Within district. Mr. Aspinwall has never had any trouble with his neighbors over the bees; and he avers that, with his system of management, and without killing and maiming the bees. The illustrations shown elsewhere will show how he avoids killing bees, notwithstanding he uses closed-end frames.

labels face-side down to each side of the table, the number of pads depending on the length or height of the jar to be labeled. In pasting down these pads we take care to place the gummed end from us. One stands with a brush on one side of the table, and daubs paste on the top label of each pad, and swings the table half way around. The operator on the other side takes one of the glasses and rolls it over a bunch of labels. This act picks the top label off the pad, and it is on the bottle without being touched by the hands or fingers. A little care and a little knack are all that is necessary. In this way the labels are rolled off in a fraction of the time it takes to pick them up one at a time, apply the paste, and lay on the bottle.

As the glasses are labeled they are placed back in the trays right side up. The trays of bottles are then covered with heavy paper and stacked up when they are ready for filling.

#### HEATING AND PREPARING THE HONEY FOR BOTTLING.

We have learned that the quicker the entire

mass of honey is heated to the proper temperature, 145 to 150, the better; and after being heated to the right point, and the quicker it can be run into glasses, the better. We have so increased our facilities that we are able to bottle 1000 lbs. or more per hour. This is how we do it:

The honey that is candied in the cans is placed in a liquefying-tank, as described in the *Review*. This honey is pumped, as fast as liquefied, into a heating-tank. That is, the liquid honey is taken away from the candied in the cans, which allows the heat to strike the candied mass, and the liquefied honey does not remain in the cans to be injured by overheating.

Our heating-tank is a double-walled tank holding 1600 lbs. of honey. The outer tank is made of heavy galvanized iron, and the inner one is made of heavy tinned copper. In this tank we have placed what we call our honey-mixer or agitator. This mixer enables us to heat the honey in less than one-third of the time formerly required, and the entire mass is made to take to take on the same temperature.





FIG. 2.—GENERAL VIEW OF THE ASPINWALL NON-SWARMING-HIVE APIARY AT JACKSON, MICHIGAN.

This yard is located in the heart of the residence of a city of 15,000 inhabitants, and directly in the rear of Mr. Aspinwall's residence. Within ten feet is another residence; in fact, the houses are packed around in that vicinity almost as closely as one would see in any city residence district. Mr. Aspinwall has never had any trouble with his neighbors over the bees; and he avers that, with his system of management, and with his hives, there has been no trouble from stray swarms on neighbors' trees or bushes—no cross bees, because he does not irritate the colonies by killing and maiming the bees. The illustrations shown elsewhere will show how he avoids killing bees, notwithstanding he uses closed-end frames.

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#### HOW THE AGITATOR WORKS.

The outer reel or spiral runs to the left and raises the heated honey from the sides of the tank to the top, and it flows into the center. The two inner fans, or paddles, run to the right and force the cold honey from the center of the tank to the outside to replace the heated. Ten to twenty revolutions a minute is sufficient, and but very little power is required.

In my next I will describe how we empty this 1600 lbs. of honey into tumblers and jars in less than two hours.

Petoskey, Mich., Aug. 3.

#### NON-SWARMING HIVES.

A Visit to the Apiary of L. A. Aspinwall, Jackson, Mich.

BY E. R. ROOT.

About a month ago I made a special trip to Jackson, Mich., to see a whole apiary of Aspinwall non-swarming hives in full blast. I had

told the inventor last fall that when his bees were working at their best, and when they were swarming everywhere else in his neighborhood, to let me know and I would make a special trip. On the 7th of last month he informed me that he was ready for me to see his "sky-scrapers." I accordingly packed up on the 10th, taking our 8×10 camera, visited his apiary, and took a number of views of the yard as a whole, and various details of the hive and the manner of handling it. A few of them are here shown.

I intended to stop with Mr. Aspinwall only four or five hours, but somehow I stayed nearly two whole days. I have traveled all over the United States, and visited some of the most extensive bee-keepers as well as some of those who are well posted; but for a close observer, and one who *knows* bee life first handed, I doubt if our friend has a superior in this country.

He spent many years before he perfected his now celebrated Aspinwall potato-planter. He has also been working on the non-swarming problem for over thirty years. Cautious to a fault,





FIG. 3.—HOW MR. ASPINWALL PUTS ON SUPERS WITHOUT KILLING BEES.

The supers consist mainly of side panels and rods at the ends to produce compression on the panels and section-holders or wide frames. Between each two section-holders is a slatted dummy which at the same time answers the purpose of a fence or ladderway up between the rows of sections. The wide frames have top and bottom bars containing sections with full sheet of foundation, no bottom starters. By carefully examining the illustrations one will see side rails or bee-space strips that are nailed on the side panels. In putting on a super the bees are blown down through the sections with smoke, when the upper side is slid on endwise, riding on two side rails as a sort of railway track. For the next operation see Fig. 4.

he has not yet launched his hive on the public. He desires to test it still further, and then when he does offer it for sale he will leave it without change.

I may say that, while I was at his place, the weather was extremely warm, the thermometer at one time going up to 95 in the shade. Even in the evening it was insufferably hot; but neither in the afternoon nor evening were the bees clustered out in front of the hives. They were all inside, giving off that contented hum that indicates prosperity and that all is well. In some cases Mr. Aspinwall had put two colonies together as one. Then those great barn-like affairs, with their supers, would stand up almost shoulder-high.

At the time of our visit Mr. Aspinwall had secured already something like 2400 lbs. of fine comb honey in plain sections from 23 colonies; and to-day, July 22, I am in receipt of a letter from him saying that the 2400 lbs. had reached 3000, and he hopes to increase this amount very materially before the crop is all in for the season.

There has been no clustering out at any time,

nor any swarming, except in one case where he inadvertently violated his own teachings and practices. As the cause was easily ascertainable he feels that the one swarm did not in any way disprove his theory concerning non-swarming.

Mr. Aspinwall has originated a number of useful devices and kinks which I hope to speak of at some future time.

The subjoined illustrations give a general view of the Aspinwall hive and system of manipulation. The double-page picture shows the sky-scrapers, nearly all of which contain sections fully capped over. Mr. A. had deferred taking off the honey because he wished me to see the hives just as they were. He was expecting to take off the filled supers the next day, and put on empty supers, as the bees were still working.

The note of explanation under each engraving will show the detail of management. In order to get the exact construction of the hive itself, one is referred to GLEANINGS for Nov. 15, last year, page 1441.

In closing, let me make it very clear that *this hive is not for sale yet, and will not be until its inventor has fully perfected it in all its details.*



## SELLING HONEY, AND THE VALUE OF COMPETITION.

Some Bright Sayings from One Who Has been There.

BY WALTER S. POWDER.

A very large crop of finest quality of honey has been secured this year, and the demand has never been better. The bee-keeper is not a master of his art till he has learned to market his crop successfully, and I fear that quite a few have overlooked the possibilities of establishing a home market, for everybody nowadays is willing to buy a pail or case of honey, especially if he can secure it from the man behind the bees. When the people once learn where a good article can be secured they will not only call for the goods but they will tell their friends and neighbors about it. One very important detail is to have the goods always on hand ready to supply those who call; and as honey is in demand the year round it is never necessary to sacrifice the price to hurry off the crop as soon as harvested. Many bee-keepers have a demand for honey which exceeds their supply, and are buying good honey in the open market with which to supply their patrons, and

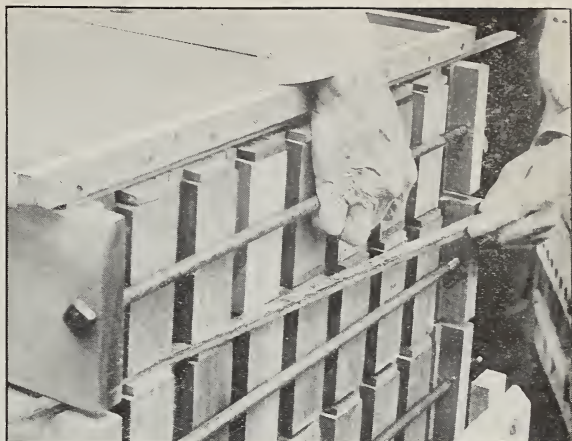


FIG. 5.—HOW MR. ASPINWALL SLIPS THE BEE-SPACING STRIP IN THE END WITHOUT KILLING BEES.

By referring to Fig. 3 one will see that the spaces between the sides of the supers are closed by means of strips of wood nailed on to the side panels, and which at the same time answer the purpose of a sort of railway track on which the supers may be slid on and off. When one super is clear over, the other spaces at the ends are closed up with an end strip or stop. If there were any bees in the way they would be pushed out.

such men are a great benefit to the fraternity because they aid in relieving an overstocked market.

The bee-keeper is the best-qualified man in all the world to act as a honey-salesman, because he is prepared at all times to meet any argument that may be brought before him. If he is steady, and adheres strictly to handling best grades of honey, his business opportunity is almost unlimited. When business begins to come his way, about the first thing to worry him will be the discovery of a competitor in his field. This, however, should not worry him at all; for the more the business is agitated the greater will be the demand; and any successful business must have its competition and its imitators. Why, even our wiener-wurst peddler on the street corner, a man with a heavy bass voice, discovered a competitor across the street with almost no voice at all, and every time the strong man shouted "Wiener-wurst, red hot," the weak man with the tenor voice would cry out, "Same here!"

This is a great country, and there is plenty of room for all; but if your competitor tries to increase his profits by putting out inferior honey, or if he spends his time in trying to build up his goods by belittling yours, he is simply uncoiling a rope with which to hang himself.

In looking over the past it can be seen that the most successful honey-salesmen are those who sell direct to consumers. Selling bottled honey to the grocery trade seems to be a side line that has fallen into the hands of supply-dealers. Whether a bottler of honey can pay traveling expenses and hotel bills, and handle

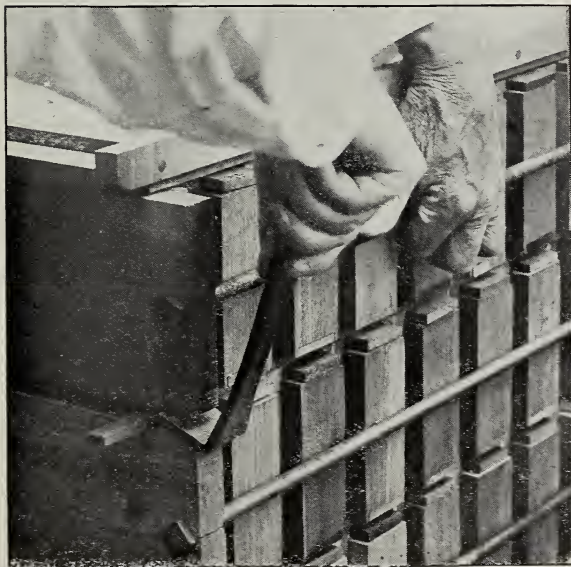


FIG. 4.—MANNER OF PRYING THE ASPINWALL SUPERS APART.

Mr. Aspinwall uses a hive-tool of his own invention which is very similar to the Root steel tool. The end is bent over in the shape of a hoe, and sharpened to a scraping edge. In separating the supers Mr. Aspinwall uses the tool in the manner here shown. The open spaces in the panels make this particularly easy.

only the one line, remains yet to be successfully demonstrated. Successful bottlers of honey are aided largely by jobbing houses, such as wholesale grocers, where traveling men carry a large variety of samples.

Within the last decade I have seen a number of bottlers of honey apparently establish a large and successful business, but there seemed to be a turning-point where the business died down as fast as it had built up. The reason was that they attempted to increase their profits by decreasing the quality, and the public will not stand it. When bottlers begin putting up honey that is unfit for table use they are doing a great injury to the business, and yet it seems that the temptation is almost irresistible with many, and the successful bottlers of honey can be counted on the fingers of one hand to-day.

Consumers are willing to try a new brand of honey; and if it is good, and has merit, they will call for more; if inferior, they are not likely to want any more honey at all.

Indianapolis, Ind., July 28.

[If one does only a honey-bottling business and buys all his honey, the chances are he will fail; but if he is a bee-keeper and produces a large part of the honey he bottles, he will have a fair chance of success, providing, of course, he is something of a salesman and is careful to get no bad accounts. Our correspondent has given some very helpful hints from a ripe experience. Some of his sayings are bright and pithy, to say the least.—Ed.]

## SELLING HONEY IN MASON JARS.

**How to Retail Honey in Cities; a Form of Advertising where the Results are Immediate.**

BY H. H. ROOT.

On page 562, May 1, Mr. M. D. Tyler, of Seville, Ohio, was referred to as a veteran honey-salesman, and he is indeed a veteran, for his experience began more than half a century ago. The secret of his success is his natural ability to win sales. He says, "I never saw a thing yet that I couldn't sell." Any man can sell any thing to a purchaser who is eager to buy; but it takes a good salesman and a good talker to sell an article where it is not wanted. Mr. Tyler will make a man who thought he did not like honey wonder how he ever got along without it.

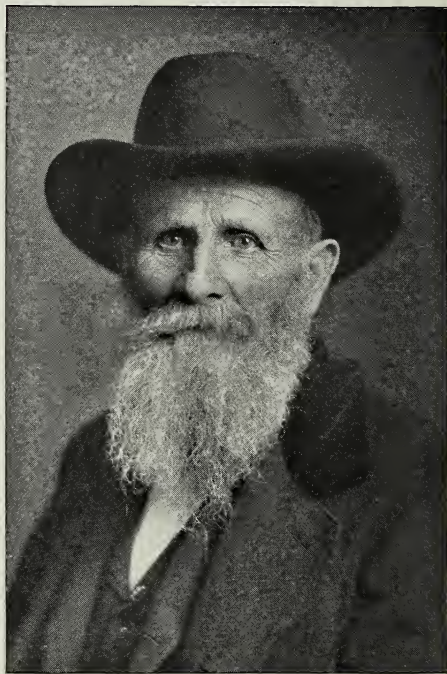
If a bee-keeper sells his honey to grocers, he will be very shortsighted indeed if he turns around and peddles more honey among the grocers' own customers; but there are many who do their own retailing in order to get a better price. After a retail business is established, much less "talking" is required to keep it going; but a glimpse of some of Mr. Tyler's methods may help some one to make a start.

In the first place, all of the extracted honey is put up in one-quart Mason jars, and sold for 50 cents each. This makes the selling price practically 15 cents a pound, allowing 5 cents for the jar. For extracted honey, that is, of course, very good; but it must be remembered that the traveling expenses must be deducted, so that the amount finally received would not be so much more than

a good average price. If a customer wishes a quantity of honey he is given eleven quarts for \$5.00.

In the wagon shown in the engraving Mr. Tyler travels and carries his honey. He has recently purchased a new wagon that is larger than this first one, though made on the same plan. The carrying-box is divided into an upper and lower part, the floor of the latter being movable to make it more convenient to reach the jars. The upper half is divided into rows to prevent breakage.

Mr. Tyler visits all of the neighboring towns and cities, but makes no effort to sell in the country, for he has found that the little he could dispose of in that way would not pay him for the longer time taken. Neither does he try to sell any honey at the houses in the towns and cities. When asked why, he said, "Well, it takes the women folks so long to decide whether they want



M. D. TYLER, OF SEVILLE, OHIO, A BORN HONEY-SALESMAN.

any; and if they do buy some, they take only one jar, and then send me down town to their husbands for the money, so I just go to the men in the first place. I like to deal with them better, anyway."

He stops at every shop and store, with the exception, possibly, of the groceries, and begins to talk whenever he can get a crowd around him, for he has found that he invariably makes sales when he can get into an argument. He explains how the honey is extracted, tells about the bees, and gets his hearers so interested that they soon begin to want some honey. When one sale is made, others follow quickly. He says that he talks fifteen minutes sometimes before trying to



sell any, and then gives every one as much as he wants to eat. After that, some one buys a jar, and all the rest do the same. In one shop in Akron he recently sold 22 jars, and in a large dry-goods-store near by, 24. On that trip he sold 1300 pounds in about three days. It is seldom that a store is entered where no one wants to buy. The bankers and merchants are always good customers. At one time he disposed of twelve jars in a police station. On the next trip every one is glad to see him, for all want more honey. On being asked how much honey he sold in a season he said that it would average about five tons. It is only recently, however, that he has been making a business of selling on a large scale.

Not every producer can sell honey profitably. One without the natural ability to make sales might go over the same territory, and not sell enough to pay the traveling expenses. Mr. Tyler simply shows what can be done along the line of retailing honey in cities. It can not be doubted that the grocers are slighted; but at the same time, in too many instances, the grocers make but meager efforts to advertise or sell the honey which they have in stock. It is possible to stir

up the honey trade by the methods here outlined, and, by referring all further inquiries to the grocer, get his co-operation.

### PACKING COMB HONEY.

**A Moisture-proof Honey-carton; How to Pack the Sections so that they are Free from Dust and Flies.**

BY H. F. MELLEN.

We believe that the public has a right to the very best honey in the market. Comb honey is a luxury first; but it becomes a necessity when

a appetite has been cultivated for a first-class article.

No honey, however fine when taken from the hive, can be called first class after being tumbled around in an unprotected condition for several months; and the only way to protect it properly is to seal each comb in an individual carton. All honey, but comb honey especially, is greatly injured in both flavor



TYLER'S WAGON FOR RETAILING HONEY.



TYLER'S WAGON FOR RETAILING HONEY.

and body, by the absorption of moisture from the air; hence a wrapper of paraffine paper is necessary.

There is no more reason why a grocer should show a comb of honey to his customer than that he should open canned goods, break eggs, or tear open the soap-wrappers or raisins carton to exhibit the contents to an intending purchaser. The name upon the goods should be a guarantee to both the grocer and customer.

The grocer handling our honey last season found no trouble in disposing of it without allowing customers to inspect it, and he summed up the matter pretty fully by saying, "I don't care a fig whether the people can see the goods; what I want is an article that, when eaten, sends a customer back for more." If a dealer has once had *first-class* goods put up in an attractive way by the apiarist, little trouble will be experienced in inducing him to buy again. *Inferior* goods, though put up in the finest style, not only injure others but surely ruin the producer.

The accompanying photos show our honey and cartons in the several acts of packing. Fig. 1 shows some of the cartons in the flat, leaning against the wall on the shelf. Just below, and to the front, are the forms upon which they are made up. On the form to the right (shown at the left of the picture) is a lead weight placed upon a carton just pasted, to hold it in place while setting. This weight is moved to the other form when the second carton is ready, and the first carton is then thrown to the packer. Library paste is used, which sets as fast as the cartons can be folded. To the right can be seen a couple of sections, one about to be wrapped in paraffine paper, and the other wrapped and ready to slip into a carton.

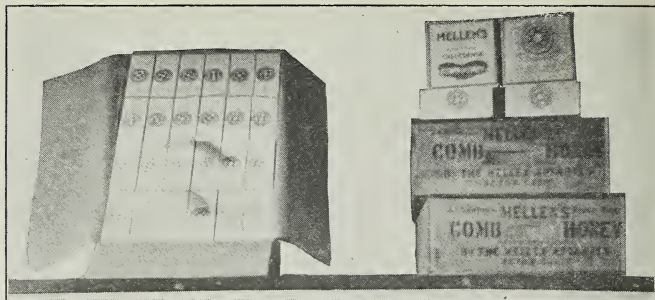


FIG. 2.—COMB HONEY IN CARTONS PACKED IN SHIPPING-CASES.

The cartons containing honey ready to be sealed and placed in the case are shown at the right.

Fig. 2 shows a case of honey packed ready for the cover, and also a couple of cases with some packed cartons of honey on top.

There are many good features of this package. First, its moisture-proof paraffine inner wrapper; second, the plain marking of the grade of each package upon the top, which is done with small rubber stamp, thus—"Fancy Amber," "Fancy White," "A 1 Amber," etc. Upon the bottom of each carton is stamped the private mark of the individual packer, so that the dealer can fix the blame, if any. Third, the neat protecting carton, which seals and protects the honey, not only from moisture but from flies, dust, and germs, and the desecrating hands of all clumsy handlers. These features are set forth to the customer in a neat little paragraph upon the sides of the cartons.

Acton, Cal.

[Canned goods, soap, etc., are uniform as to quality and quantity, and there is nothing gained by examining each package. *If honey is properly graded* a customer would not need to see each section before buying. But as honey does vary, especially from one grade to another, there may be some excuse for showing it. Fancy white comb honey sells itself.—ED.]

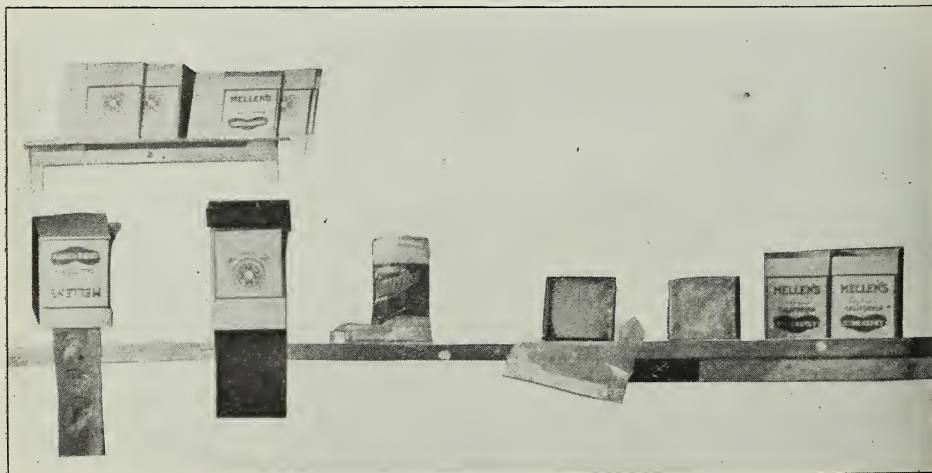


FIG. 1.—MELLEN'S METHOD OF FOLDING CARTONS AND WRAPPING SECTIONS IN PARAFFINE PAPER.



## PREPARING COMB HONEY FOR MARKET.

**The Importance of Scraping Sections and Sandpapering Shipping-cases; Some Wholesome Advice from One who has Had a Large Experience.**

BY DR. C. C. MILLER.

When a nice section of honey lies on a plate on the table, what does it matter what kind of case contained it when it stood in the grocery? Does the eater stop to inquire whether the wooden section that contained the comb was neat and clean, or whether it was well covered with bee-glue? Of course not. But because it makes no difference after it's on the table, don't you fool yourself into thinking it makes no difference before it gets there.

Suppose two cases of honey stand side by side in a grocery. One of the cases shows signs of travel and previous use, and even in its palmiest days it was never a very neat affair. The other is neat and clean—same difference in sections. Those in the one case have been nicely cleaned of all glue; in the other case, the sections are just as the bees left them, and are plentifully daubed with glue. The average customer, upon being told that there is a difference of 2 cents per section in the price, nothing being said about comparative quality, will very likely elect to pay the extra 2 cents. If the grocer says, "The honey itself is just as good in one case as in the other," some will choose the honey at the lower price; but some will say, "It may be so, but every thing about this case looks so neat and dainty that it must be a little cleaner than the other, and likely just a little better." But the grocer himself is likely to be impressed with the opinion that there is really greater value in one case than the other, and that opinion affects him, both in buying and selling, and so from first to last this case of honey, "just as good as the other," is handicapped by its appearance.

Even if the difference be only a cent a pound, it will cost you only a fraction of a cent to have the better class, and the remaining fraction of a cent makes quite a tidy sum when your crop is large. Besides, if the outside appearance in the grocery is inviting, many will be tempted to buy who would be repelled by something less attractive.

You can save a little on shipping-cases by having a narrower strip of glass, but it is poor economy. Either on the grocer's counter or piled up in the wholesale room, the more glass the finer the honey looks. But there is no advantage in having glass on two sides, as only one side can be seen at a time.

To a bee-keeper there is nothing repulsive in the appearance of bee-glue, but to the average consumer there is; so, don't send any bee-glue to market. Your supers may be of such character that the section is mostly covered, but hardly entirely; and wherever the bees have a chance they are likely to squeeze in at least some glue—the later in the season, the more glue. Perhaps your supers allow the bees free access to tops, or to both tops and bottoms. In that case make a wholesale job. Wedge the sections into a frame

a little less in depth than the depth of the sections. Take a cabinet scraper and give the surface a good scraping. Then take No. 2 sandpaper and sandpaper down till the whole surface of the wood is entirely new and clean. Wonderful what a change you can make! The superful of sections, while you are doing this work, should be standing on a board as large as or a little larger than the size of your super. When you have finished cleaning that surface, lay a similar board on top; turn the whole business upside down, and clean the other side. Then with a caseknife kept pretty sharp clean off the edges of each section, resting the section on a block perhaps the size of a section.

Don't lose money by false grading. Let the sections that are next the glass in the shipping-case be a fair sample of the whole case. But you are allowed to put the best side out of the sections that are next the glass, just as the best side of a section will be uppermost on the table.

If your bees have stored first-class honey you may as well have every thing in first-class shape and get first-class prices. Keep that up for a few years, and you will have no trouble in finding a market, perhaps getting into that class whose honey is sold before it is taken from the hives.

Marengo, Ill.

[Here is some good wholesome advice, and we hope the small producer, at least, will cut it out, even if he does mutilate his journal, and paste it in his hat or on his honey-house door.

It is a lamentable fact, and almost an outrage, that so much comb honey goes on the market without either scraping or grading, and in cases that are either soiled or homemade. Oh the penny-wise-and-pound-foolish policies we see among some bee-keepers! Why do they hold their noses on the grindstone? Why do they throw away dollars and dollars when a few cents' worth of time would save them? If they would heed this good advice of Dr. Miller, they could save a fine profit which they now lose. As it is, they bring down the prices of all honey.

In talking with a honey-dealer the other day we asked him what percentage of the honey came in scraped and graded. His answer was, after some little reflection, "Sixty per cent of the fancy and only about 20 per cent of the No. 1." Just think of it, brother bee-keepers! Do you belong to the class of the 80 per cent who think it does not pay to scrape and grade your honey before shipping to market? And you who propose to put up a fancy article, do you belong to the 40 per cent who neither scrape nor grade?

You may say that a "fancy" honey is a graded product. It ought to be, surely; but in the goods marked "fancy," the dealers tell us they often find No. 1 and 2, all in the same case. Such shiftlessness, or, perhaps, we better say *dishonesty*, is enough to make one cry if it would do any good.

It is assumed, of course, that the readers of bee-journals do not belong to the class who do not scrape or grade their honey; and the unfortunate thing about it is that our scolding does not hit them. Those people can not afford to take a bee-journal, and have not time to fix up their honey so as to make it sell—"any old case will do;" and if the sections were on the hive last season, all covered with stain and propolis, "they

are good enough" for this year. It is these same people who will cobble up a shipping-case of their own, out of drygoods-boxes. Oh, no! they can not afford to send away and get good cases; but they can afford to lose several cents per pound on their honey. No, they will sell at any old price simply because they are not keeping posted as to the markets.

We have almost a mind to have this article of Dr. Miller's set up in the form of a leaflet, and send it out with each package of sections and shipping-cases. Shall we do it?—Ed.]

## GRADING AND PACKING COMB HONEY.

### The Importance of Having all Honey a Little Above Grade; How to Tell Whether the Grading is Properly Done.

BY WESLEY FOSTER.

The honey-producer who is going to make a success of his business in the future will be imbued with the spirit of mutual benefit. He will be filled with the knowledge and feeling that he is giving more value than he is paid for. It may be foolish to put No. 1 honey on the market as No. 2, but that is a deal more honorable than to have the honey always just a little below grade. Why not have comb honey just a little above grade, so the buyer will be sure to get the honey *at grade*, for honey does drip and deteriorate somewhat in shipping?

When every case of No. 1 white and No. 1 light-amber comb honey is as even in quality and as neatly put up as a box of bon-bons, don't you think the honey-producer will be recognized as a person of quality? The quality bee keeper makes kindling-wood of his leaky covers and uses the gunny sacks for smoker fuel instead of for blankets on his supers; neither does he allow the mice to scallop his sections.

The grading-rules do not forbid putting a section gnawed by mice in a No. 1 or No. 2 case; but it is not good practice. The rules can not mention every catastrophe that would bar a section from the given grade. I would not care to buy a box of crackers with a mouse-hole in one corner. The rules do not forbid a section with a part broken off or an imperfectly folded section, or one diamond-shaped; but if the grader is not a conscience-juggler he will at least bar these from the No. 1 grades. His judgment will decide whether sections of this class should be No. 2 or culls.

At a bee convention, when the subject of grading comb honey was under discussion, I saw illustrated just how a No. 1 section should look to come

well within the grade, and just where the dividing line between No. 1 and No. 2 is. One bee-keeper who had difficulty in distinguishing between a slight and a pronounced tinge in comb color, and manifested an unwillingness to try to see the difference in light amber and white in the color of the honey, asked an experienced bee-keeper and shipper of comb honey what rules he followed. He said he put himself in the buyer's place and then followed the rules, pushing the faculty of fine discrimination to the limit. One can soon find out whether he has been using fine discrimination by going to a pile of honey if he has some from the best to the poorest, and picking out combs of the whitest honey, then slightly amber, light amber, and amber of a pronounced color. If he can mark these and then mix them up and separate them the second time, and get them into the same arrangement as at first, he may be sure he has the discriminating faculty. The greatest trouble comes with me when trying to tell slightly amber from light amber.

Now, many get the color of the honey and the color of the cappings mixed; or, rather, they do not discriminate. Cappings may be white over an amber honey, or they may be dark over a white honey.

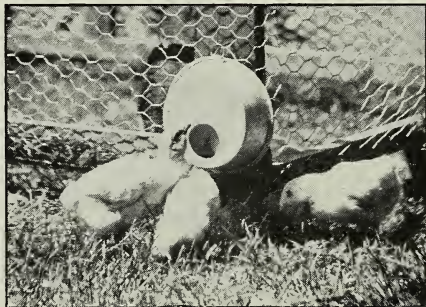
The committee on grading-rules for the Colorado State Bee-keepers' Association, when they came to describing the color limits for cappings to No. 1 light amber, first wrote it this way: "Comb and cappings white to grayish or light-brown tinge;" but upon consideration they changed it to read, "White to off color, but not dark." The reason for changing was that some would construe that light-brown tinge to include dark cappings, which would not come up to the name of light-amber comb honey. Now get this firmly fixed in your mind. You must, to do the best grading, carry these two items in mind—color of comb and cappings, and color of honey. They must not be mixed in the grader's mind. He must look for color of honey and color of comb in each section.

No. 1 white comb honey. The honey must be white or *slightly amber*, while the comb and cappings must be white with no slightly any thing to it.

As for No. 1 light-amber comb honey, the honey may be white or light amber, while the comb and cappings may be from white to off color, but not dark.

The grader who discriminates the slightly amber honey of the No. 1 white grade from the light-amber honey of the No. 1 light-amber grade is getting his work down to an art. The line between white comb and cappings of the No. 1 white and the "white to off color, but not dark" of the No. 1 light-amber is not so difficult.

Some disagree as to where off color runs into dark which should



WATERING-DEVICE FOR LITTLE CHICKS.  
See Poultry Department.



go into No. 2 grade. The ideas of grayish to a light-brown tinge may help some here. Remember, though, a light-brown tinge is not light brown, for a light brown on a comb of honey is dark.

When ready to start packing comb honey, I get a boy to nail the cases so they do not lie around more than a day or so to gather dust and fly-specks. Nails for the drip-sticks are not as satisfactory as a little thick honey. The nails will sometimes come through. In packing, the cases are set on a bench so the top of the cases comes to the top of the table on which the honey is piled.

The scrapers have the scraping-box on the opposite side of the table from the grader, so there is no danger of scrapings getting into the cases of honey. The grade is marked on the case before the cover is nailed on, and before the honey gets to the pile. A plane is kept close by to plane off any extra wood from either the bottom or cover of the case.

In piling the honey in the storage-room it is best to pile the face out, so if any flies get in the cases they can be let out by pulling a nail and sliding the glass. And then I like to look my honey in the face several times before selling. The time spent in admiring a pile of white comb honey is not wasted—it's a very profitable task; 'twill keep one always on the alert for better methods in producing a *de luxe* article.

The recommendation supplementing the Colorado State Bee-keepers' Association grading-rules embody some of my ideas on grading and packing comb honey, as I was one of the committee; and what the committee says I should like to add to this article.

#### REMOVING AND HANDLING FILLED SUPERS.

Comb honey should be taken off as soon as completely capped; no more smoke than necessary should be used, and the smoker kept well filled with fuel so no ashes will blow out and spot the cappings. If finished supers are stored in the honey-house, one or several sheets of newspaper should be used between supers to catch any possible drip and keep out dust and ants.

#### NAILING AND MARKING CASES.

Cases should be well nailed with cement-coated nails, and glasses perfectly clean. If edges of covers and bottoms project they should be planed off; if this is not done, many boards will split in shipping. The whitest and smoothest boards should be reserved for covers, and the others used for bottoms. The paper tray in the bottom should be evenly folded, and drip-sticks secured in their proper places by the use of a little glue or thick honey on their under side. Nail cover on firmly when the case is filled. The mark of the grade of honey should be put into both hand-holes of the case: X stands for No. 1 white; one dash for No. 1 light amber; two dashes for No. 2. The marking of filled cases should be done before they go to the storage-pile. Second-hand cases should be used only for the casing of cull honey—never for the shipping-grades.

#### CLEANING AND CASING HONEY.

This work must be done in a well-lighted place, and a large bench or table provided for it. The shipping-cases to receive the honey should

be placed so as to face the packer, and should be arranged so no propolis from scraping will fly into them. It is desirable to have several cases for each grade on the bench, so that honey of the same shade and finish may go in the same case. A definite place should always be used for each grade, to avoid errors in casing.

An accurate spring scale should be handy to weigh doubtful sections.

The practice of piling honey on the bench before casing is not recommended, as honey is more subject to injury, and time is lost in casing. It is desirable that the packer have a copy of the grading-rules hung up before him for ready reference; and where this work is entrusted to others, the apiarist should provide specimen sections representing the poorest of each respective grade, and give strict orders that anything inferior to these samples must go in the next grade below.

The face of each case should be of uniform color and finish, and truly represent the contents of the case.

Cull honey is composed of the following:

Honey in badly stained sections caused by leaky covers.

Honey that shows signs of granulation. Sections that are leaking, or whose cappings are injured.

Sections that are fairly well capped, but have more than 25 open cells.

Sections that are capped, but weigh less than 12 ounces.

All cull honey should be marketed around home, or rendered.

#### HAULING OF COMB HONEY.

The proper time to haul and ship comb honey is while the weather is still warm, therefore no time should be lost in getting the crop ready. In hauling by wagon it is desirable to provide springs for the wagon-bed; and if these can not be had, a layer of three or four inches of straw should be used in the wagon. On top of this should be spread a canvas or large wagon-cover, in such a way that, after the wagon is fully loaded, the canvas will fold over the top of the load, thoroughly protecting the honey from dust or a possible shower.

The bed of a regular farm-wagon will take 98 cases of honey. A good steady team and careful driver are required to haul comb honey safely.

Boulder, Colo.

[In a letter in connection with this article Mr. Foster explains that all his packing is done according to the rules of the Colorado State Bee-keepers' Association. He believes that those rules are valuable, especially if the time and thought of experts are worth any thing. He says, "We have fought and jawed and voted in committee and on the floor of the convention over these rules."—Ed.]

#### A WARNING.

UNDER the national pure-food law, perhaps we may remind some producers that they are rendering themselves liable to Uncle Sam if they sell amber honey for white clover, or, in fact, misrepresent the source of any honey on an interstate deal.

## SPACING BROOD - FRAMES WIDER APART FOR WINTER.

BY E. N. WOODWARD.

I am not aware that I have ever read or seen an article in any of the bee-magazines on this subject. If the question has been a topic of discussion, and if bee-keepers, accordingly, have adopted  $1\frac{3}{8}$  spacing as being at all times correct, then I think it would be well to reopen the question for further consideration.

The severe losses during the winter and spring, with now and then an exception, prove that the successful wintering of bees is still one of the most important questions. If I were to look over the back numbers of the different bee-magazines and quote from editorials or from different contributors on the subject, a large percentage of loss would be shown even among those who claim to be expert in the general management of bees. If I were to report from my own locality (Southern Michigan) I would say that ten per cent loss is not a high estimate, as it averages from year to year. The question presents itself, then, "How can this severe winter loss be avoided?"

I am writing this from an outdoor-wintering standpoint, and I wish to say that, according to my experience, we are spacing our frames too closely for the successful wintering of bees in this northern climate, so I am trying to work out the solution along lines that are more practical and which are more in harmony with the general law of all insect life.

Every one will agree with me when I say that an isolated bee is of no account. It is equally true that a thin spreading of bees sandwiched in between two closely spaced frames are of very little account. To confine them thus for a long time, with a winter temperature outside, deprives them of their vitality and their moving power. It is not giving them a "square deal." Martyrs they are to our misconception of what is essential to their comfort and to their very existence. I hold that each separate sectional cluster between the frames should be strong enough to maintain and impart a sufficient degree of warmth and vital force to make this cluster a community of itself. This enables them to cover their brood and build up stronger in the spring, and the trouble of spring dwindling is not even thought of.

Now, to carry out this community law I propose to space my frames not less than  $1\frac{1}{2}$  inches from center. In other words, I space equally the eight frames in the standard eight-frame hive with no dummy. To my mind it is clear that bees will winter in a more natural and healthy condition if they are given even this extra room to cluster in larger bulk. This larger cluster closely packed enables them to hold their normal temperature, and gives them the power to generate and impart one to another their collected store of animal heat and health-giving odor, even to the outside limit of the hive; and thus they live and thrive the entire winter and spring.

I have no word to say against cellar wintering. I prefer to winter my bees in outdoor winter cases; and, if properly packed, I have no anxiety in regard to them. However cold it may be when

the opening bud and the warm sun shall tell us that spring has come, I expect them all to respond to the roll-call. I have not adopted this plan or come to these conclusions without a reason.

My neighbor across the way is a bee-keeper in a small way, and packs his bees in winter cases following my plan, and they are sure to come out bright and healthy in the spring. His Hoffman frames have become so thoroughly propolized and enlarged that seven of them will nearly fill his eight-frame hive, and they go into winter quarters in this spread condition. When I used to space my frames more closely and lose more or less of them during the winter and spring, his would come out bright and strong.

Another bee-man near me, so-called, makes his own frames out of common lath pieces, and spaces them  $1\frac{3}{8}$  inches. He has no protection whatever. The northwest wind sweeps along the hillside with a temperature often below zero, yet his winter losses are not worth counting. Now, if spreading the brood-frames is not the secret of this uniformly good wintering, will some wise bee-keeper stand up and enlighten us on this most important question?

Hillsdale, Mich.

[Some fifteen or twenty years ago it was the common practice to spread the frames toward the approach of winter for the outdoor colonies, as it was argued that the bees needed more clustering room between the frames. In short, precisely the same arguments were advanced that you present. Finally some began to say that there was no advantage—that just as good results would be secured with the summer spacing of  $1\frac{3}{8}$  inches from center to center. Gradually nearly every one, including ourselves, left the same spacing the year round. We tried both ways—about 15 years with the wider spacing for winter, and for the last 20 years we have been using the summer spacing. There has been no appreciable difference in the results, so we concluded that there was nothing gained, and, if we are correct, that was the conclusion arrived at by nearly every one. The point is, there is *practically* no difference between  $1\frac{3}{8}$  and  $1\frac{1}{2}$  inches that you advocate. Or, to put it another way, the difference is too small to affect the actual result. The difference to which you refer must be due to some other cause.—Ed.]

## A PLEA FOR BETTER QUEENS.

BY J. E. HAND.

I noticed in GLEANINGS for Oct. 15, 1907, that Dr. Miller quotes Rev. Mr. Luger, *Deutsche Bienenzucht*, as saying that "the masterpiece of bee culture is *not* wintering nor yet springing, but queen culture." Now, that strikes me as being about the most common-sense statement that I have heard for a long time; and while the editor's remark, that one is about as important as the other, seems quite reasonable, yet when we consider what the queen is to a colony of bees, and how much is written upon subjects of comparatively minor importance, and how *little* is written upon the subject of queen culture, we can not but acknowledge the wisdom of our German



brother's statement. The queen is the very mainspring of the existence of a colony of bees; and, aside from this, the exact relation of the queen to successful comb-honey production is not generally understood, even by so-called expert honey-producers. Therefore the subject of queen culture is of vastly more importance to the honey-producer at *this* time than all other subjects combined. It is a fact greatly to be deplored that this most important branch of apiculture is the most neglected of all; and it is no less true that most of the so-called improved methods of modern queen-rearing in vogue in this country at the present time (some of them even claiming to be scientific works) are the bane of modern apiculture, and a direct menace to the interests of our beloved pursuit, bee-keeping. It is a deplorable fact that at least half the queens that are reared by these alleged scientific methods are actually not worth the time required to pinch their heads. What the bee-keepers of this country need to-day is a better knowledge of the true relation of the queen to successful apiculture. There is something of vastly more importance, especially to the producer of comb honey, than merely having any old queen in each colony of bees; for if the queen lags or fails to do *her* duty during the honey-flow, the bees will quickly take advantage of the fact to fill the brood-chamber with honey, to the utter neglect of the supers; while with a vigorous and prolific queen the brood-chamber would have been held for brood, and practically all the honey would be forced into the sections.

For many years bee-keepers have wondered why it was that certain colonies in the apiary would far outstrip others of equal strength, and which, so far as they could see, were in as good condition to store honey as were the others. This condition of things has become so common in our present loose methods of allowing the bees to requeen themselves at the expense of the honey crop that some of our best bee-keepers of to-day count upon having ten to fifteen per cent of their colonies practically unproductive; and, judging by my experience along this line in the production of comb honey, the per cent of unproductive colonies would be much greater than the above. With proper attention to the *queen* part of apiculture there is no more excuse for the up-to-date progressive honey-producer to allow a part of his *apiary* to become unproductive than there is for the farmer to allow a part of his farm to become unproductive through neglect and failure to attend to his business.

One noticeable feature about the writings of those bee-keepers who advocate the wasteful, shipshod, unbusinesslike methods above mentioned is that they never attempt to explain *why* it is necessary to keep a lot of no-account colonies; and we must, therefore, conclude that there is no *cause* for such a condition, and attribute it to *luck*. Well, I should think it would be mighty hard luck for the bee-keeper who would tolerate such a condition in his apiary. What the bee-keeper and the farmer of to-day need is not more bees and more land and shipshod go-as-you-please methods, but a better knowledge of how to secure best results from what they now have; and when they have brought their present farm or apiary up to its highest state of produc-

tiveness, then, and not before, is the time to invest in more bees and more land.

It is about time some of the old threadbare theories were exploded, and that bee-keeping as a pursuit should take advanced ground.

I shall have more to say upon the subject of queen-rearing and queen introduction and manipulation; and in conclusion I wish to join hands with our German brothers in the statement that queen culture and a better understanding of the true relation of the queen to successful comb-honey production are the *sine qua non* in successful bee-keeping.

If I am not mistaken, it was W. Z. Hutchinson who, several years ago, made the remark that, other things being equal, one queen is as good as another; and that statement has been sticking in my crop ever since, and somehow it still refuses to go down; but I hardly think Mr. H. would consider the statement as orthodox at the present time.

Nov. 24, 1907.

[The statement that "it is no less true that most of the so-called improved methods of modern queen-rearing in vogue in this country at the present time, some of them even claiming to be scientific works, are the bane of modern bee culture, and a direct menace to the interests of our beloved pursuit," is, it seems to us, wide of the truth. We will admit that but little progress has been made in the improvement of stock; but that half the queens reared "by the aid of scientific methods are actually not worth the time required to pinch their heads off" is both unjust and severe. Doolittle's book is named "Scientific Queen-rearing;" and if ever a writer made a plea for stronger and better queens it is Doolittle. It is he who placed strong emphasis on the rearing of queens at a time when bees would feed the cells most lavishly; and yet, according to the author of the above, this book seems to be principally singled out. We will admit that a lot of poor queens are sent out; but they do not come from our best dealers who have had years of practical experience. We have too much confidence in the ability of our old queen-breeders to think otherwise; but our correspondent, for all his strictures on American queen-rearing, makes a good point when he discusses the true relation of queens to successful bee culture; and we commend that portion of his article, at least, to the careful consideration of our bee-keepers who keep bees because of the bread and butter they can and do earn.—Ed.]

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## WAX-RENDERING.

### How to Convert a Steam Wax-press into a Superior Hot-water Press.

BY F. W. LESSER.

For several years I have been using a Root steam wax-press as a hot-water press, and have been very much pleased with the results, both in the amount of wax secured and the speed with which it was obtained. I frequently render 100 lbs. and over in a day from old combs. To convert the steam-press into a hot-water press, all that is necessary to do is to solder a piece of tin over

the place for putting in water, and provide a tight-fitting cork for the outlet. Or a gate or valve can be soldered on.

To make the press several times the capacity of the one-cheese press, about eight division-boards are needed between the different cheeses, as six or eight cheeses are pressed at one operation. These boards should be nearly as large in diameter as the inside of the press (discard the wire-cloth basket, as it will tear the bags), and made of  $\frac{3}{8}$ -inch wood with  $\frac{3}{8}$ -inch-square slats nailed on one side  $\frac{1}{2}$  inch apart, and these covered with  $\frac{1}{4}$ -inch-mesh galvanized wire cloth. Eight burlap bags one foot wide and 18 inches long are also needed.

In operating I use an old cook-stove in the cellar. This is large enough to hold both the press and a large wash-boiler in which the combs are melted. A hot fire is needed, and the refuse pressed. Slumgum, when a little dried, together with wood, makes a hot fire.

To fill the press, first put in a division-board (a plain board will do for the bottom of the press); then a bag of melted comb; then a division-board, slat side *down*, and so on until the press is full, when pressure is applied, a little at a time, until the next batch is ready, and until you have applied all the pressure you think it is safe to subject the press to. If necessary, pour in hot water enough to bring the wax above the top cheese, where it can be easily dipped off with a ladle.

In filling the bags with the melted slumgum, hook one side over the projection on the top edge of the press. In this way it is easily held open and the slumgum dipped in. Four to six quarts is about the right quantity for a cheese. Then it is let down in the press, and the top given a twist.

When it is thought that the refuse has been pressed sufficiently, all the wax is dipped off the top and the water drawn off into a tub. Then the screw is released and the cheeses taken out and emptied for the next lot. A bent wire hook is used to get the cheeses out of the press.

You will be surprised at the very small amount of wax (if any) you will be able to discover in the refuse; and the quality is all right too. I have gotten out many thousands of pounds in this way, and have had no complaints.

If one thinks more wax can be obtained by the so-called washing process than by continuous pressure, it is easily done by simply releasing the screw a few minutes and then applying pressure again. But I have not been able to get any more wax in this way. Possibly the thin cheeses account for this.

I have tried pressure on a larger and smaller scale, both hot and cold, but this press and method suit me best. For amount of wax secured, and ease of operation, I do not believe an open press can compare with it.

Several years ago I used the Root press in this manner with steam instead of hot water. This was a very good way, but did not give quite as much wax as with hot water.

Syracuse, N. Y.

[Our correspondent does not say whether he ever tried pressing the refuse a second time in the same manner to see how much more wax could

be obtained. We have rendered a good deal of wax by this method, using the steam-press as a hot-water press; but our opinion was that, if the hot-water plan were to be used, a can larger in diameter in proportion to the height should be used in order to permit of a greater heating surface. It is practically impossible to see wax in refuse that may contain as much as 10 to 15 per cent; and the only way to be sure that there is not too much waste is to repeat the whole process on the refuse.—ED.]

## WHY THE BEES DIED.

### Poor Results from Cellar Wintering.

BY COLUMBUS CONGER.

I very much wish to know what is wrong with my bee-cellar. It is of stone, 7 ft. high, 14×18 feet in size, built into a bank on the west side, which comes nearly to the top of the wall, with a little of the bank on the north and south, and a double door on the east, which is the only place where I could have the door. The floor of the cellar is cement. The first winter I had for ventilation one 5-inch tile built into the wall on the south end, and a 3-inch tile on the north end, about 12 or 14 inches from the top of the wall. I put 60 colonies of bees in the cellar, and nearly all died.

Early in March I had to set them out, for they were all moldy and wet, and were dying every day, some of starvation, but more of the dampness, so I concluded they would be better off out than in, even if it were too early. I had only 14 colonies left for the summer harvest.

I concluded that the ventilation was at fault, so last fall I put a ventilator in the middle of the cellar, made of dimension boards 10×12 inches, which comes to the bottom of the cellar and up through the honey-house, which is above the cellar, with a single floor between. The ventilator extends about two feet above the honey-house roof, and the opening in the cellar is at the bottom near the floor. Then the tile on the north end I filled up, and in the one on the south I inserted a pipe with an elbow, which lets the cold air in near the floor also. I put about the same number of bees in the cellar last fall, with about the same results. I had to set them out earlier than I wished to this spring, because they were molding and dying. Most of them had honey in the hives, but the combs are covered with mold. They were in good condition when placed in the cellar. The bees were placed in the cellar with the hive-covers removed, and were covered with a wire screen, and quilts for each hive. Now, I should like to have some one tell me just what is wrong, and what would be the best and cheapest way to fix this cellar. I have thought of building a room over the door on the east side, in which I could have a stove, and heat and ventilate it that way. Is this advisable?

The temperature of this cellar has been about 30° all winter. I think it is too cold, but I do not know how to alter it.

Glenbeulah, Wis., March 26.

[It is very clear where your trouble lies. Your cellar is altogether too cold and damp. With a



temperature of 30° all winter it is no wonder that your bees die. It will be very easy to modify this difficulty by putting a small stove in the cellar or in an outside vestibule, as you suggest, the heat to go from the vestibule into the cellar. This would serve to raise the temperature, and at the same time remove the surplus moisture. An excess of dampness, with a temperature below 40, is very fatal. There should be a fire in the stove during the coldest part of the winter, or whenever the temperature goes below 45. Even if the fire be continued only two or three hours, raising the temperature say to 50 or nearly 60, and it then goes out, and the temperature drops to 42 or 43, no harm will be done. The moisture will be taken care of, and the bees will be kept clean and sweet.

The great trouble with many bee-cellars is that they are too warm because not sufficiently underground some parts of the winter, and altogether too cold at other times. Bee-keepers need not be afraid of using stoves, providing they do not get the temperature too high, as ordinarily it should not go above 50 nor below 40; 45 is the most desirable point. Some cellars filled with bees will maintain that temperature throughout the winter; and where that can be done, no stove and but very little ventilation will be required, as the bees are in a state of semi-hibernation when respiration is very much subdued.—Ed.]

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## HEADS OF GRAIN

### FROM DIFFERENT FIELDS

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#### DISPENSING WITH SEPARATORS.

In the new A B C book, p. 118, you ask the question, "Why not dispense with separators altogether?" and then you answer, "We can, by using narrow sections." Now, in dispensing with separators what kind of section frames or containers shall we use? Shall they be plain ones, and placed wide enough apart to leave a bee-space, or shall they have the usual bee-space cut out and use open sections to match? It seems to me sections as narrow as 1½ with openings for beeways would be impracticable. Another thing, I should like a section that would hold a full pound, and for that reason would prefer a 4×5 section 1½ inches wide. But would that be as desirable as the narrower section, in our effort to get rid of the separator? It does seem to me that, if we can succeed in doing away with the separator, a long stride will have been made in simplifying honey-making. The modern bee-hive is entirely too complicated, and has a great deal too many loose parts or pieces. Whitehall, Ill. A. W. FOSEMAN.

[To do away with separators would require the same spacing from center to center as our brood-combs. This would mean beeway sections open on all four sides, 1½ in. thick, or plain sections ¾ in. thick. Obviously, the former would be more suitable—or, rather, they would not look so thin when filled as the others.

As to containers, section-holders, or wide frames, could be used. Full sheets of foundation—the "thin," not the extra-thin—should be

used, as there should be no buckling nor stretching. The foundation should be well fastened, and the hive plumb from side to side, providing, of course, sections were parallel with the sides. It would not be practicable to make a 1¾-thick beeway section hold a pound, as it would be too large; and a ¾-inch plain section would look more out of proportion yet.

A 4×5 plain section 1½ in. thick could not be used without separators or fences.—Ed.]

#### SHORT-LIVED QUEENS; HONEY CANDIED HARD IN THE HIVES.

We are located at the foot of the Big Horn Mountain, and have about 300 colonies in eight and ten frame L. hives. They are in fine condition, needing only sunshine. Our pasture includes the numerous wild flowers, together with dandelion, white and crimson clover, alfalfa, and the famous sweet clover. Bees do exceedingly well.

I should like the advice of your contributors in overcoming a trouble that we have. Our queens seem very short-lived, for they die leaving the hive full of stores. This may occur at any time of the year. Our honey also granulates in the hive. At this date we have several thousand pounds in the hives that is as hard and dry as granulated sugar.

Buffalo, Wyo., June 7.

FRANK JONES.

[We should be glad to have any subscriber in the vicinity, or like environment, who can offer an explanation, let us hear from him. The difficulties mentioned must be due to some special local conditions, and we will not attempt to answer it at this time.—Ed.]

#### HIVE-LIFTING DEVICES; SHALLOW HIVES NOT ADAPTED FOR BEGINNERS; WAX-RENDERING.

In an editorial I notice what is said about hive-lifting devices. This is what I wanted badly the last two months. You see I kept the bees from swarming by adding shallow extracting-supers till about June 25, and kept adding them till I had them 30 in. high. Toward the last, just before shaking, it was a task to get an empty shallow super just over the brood-nest. I had to call help the last time.

After shaking the bees out in shallow hives and arranging for comb honey I took all that was on the stands of seven colonies and piled them all on three stands. This made them quite high. To get at the lower supers would have been too much work, and a hive-lifting device would have come in nicely to handle them. If you get up something in this line I want one. You may say Salisbury wants every thing new to try, like the N super and Aspinwall hive. Really I enjoy these new things.

On page 878 I notice E. F. Atwater advises against the use of divisible hives. He voices my sentiments exactly when he advocates cautioning beginners against their use. These hives can be used only by experts in the business. Pollen will be found in the sections unless perforated zinc is used in *plain sheets*. The plain sheets will help very much to keep out the pollen. The best hive for beginners is, according to my notion, the regular Dovetailed hive.

On page 887 an article on wax-rendering attracted my attention, and I wish to agree with Mr. Byer in regard to the unheated and heated wax-presses. His conclusion recommending the use of the unheated press is in line with my ideas. The footnote of editor is also entirely correct.

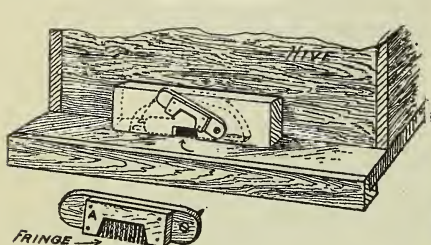
Syracuse, N. Y.

F. A. SALISBURY.

combined by running a cord through the center of the square cleats, and tied at the corner of the hive. The cleats should be one or two inches shorter than the length of the sides of the hives; that is, if the hive is  $20 \times 14$ , the pieces or cleats should be 18 and 12 inches respectively.

Oswego, N. Y.

F. H. CYRENIUS.



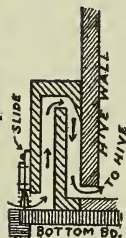
VESTIBULED AND PROTECTED ENTRANCES.

This is a very important branch of our pursuit, especially during the cold spring days. The chaff and double-walled hive with wide-open entrance is to me like building a warm house but leaving the door open. Bees need some ventilation; but very little is necessary in cold days. I am wintering some with an entrance the size of a leadpencil.

I send you one of my windbreak entrances. The bees, to go in or out, must pass up and down over. As you will see, this prevents the wind from blowing right into the hive. In connection you will also find an automatic closing entrance in the form of a button which may be swung up back out of the way in warm weather. The bees must learn to crowd their way through it, which they will do if the threads are not made too thick.

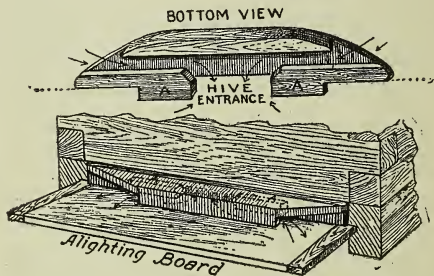
#### FASTENING PAPER AROUND THE HIVE.

In the Nov. 15th issue of GLEANINGS, p. 1436, we find directions for fastening the paper around the hive with a cord. It is not possible that the

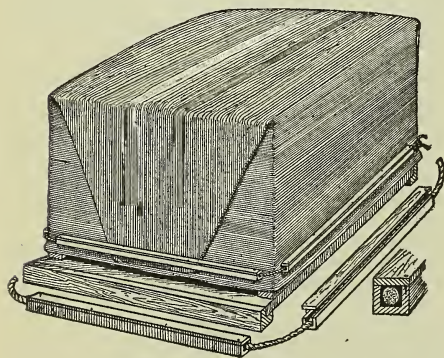


[Last spring we made up some entrance-stops like those shown in the drawing; but our apiarist, Mr. Bain, was not sure they were a real benefit. The bees acted confused. This may have been, and probably was, due to the fact that the stops were put on *after* the bees had had several flights, and to a certain extent had become accustomed to the entrance as it was all winter. The putting on of these new appliances may have confused them to their hurt. Possibly if they had been put on the November previous the results might have been more positive.]

Here is another sample of an entrance-stop or windbreak on the same plan as yours, except that



it lies horizontally, thus enabling the bees to carry out their dead more easily. In the type you show, this would be rendered more difficult. —Ed.]



THE CYRENIUS METHOD OF FASTENING PAPER AROUND THE HIVE.

cord can hold the paper as close to the sides of a hive as a cleat would, but the nailing of the cleats would be objectionable. The two plans may be

#### CHICKENS EAT DRONES.

I have been reading on p. 1505, of the Dec. 1st number concerning drone bees and chickens.

For a number of years I kept Black Minorca fowls. The bees used to sting them badly — so much so that when the fowls wished to cross the yard they did it by running; but the past two years I have kept Rose Comb White Leghorns. I made the change, as the Minorcas suffered so by having their combs frozen in winter. That stopped the egg production. I am pleased that I made the change; but what amused me in 1906 was that the young fowls were very fond of drones; and to catch them (the drones) on the fly, leaving or returning to the hives, the chicks would approach at the side of the hive and snap up the drones so quickly that it was quite amusing. The young fowls of 1907 have the same trick. I have seen them snap up 10 or 12 in a few minutes. I think the difference in color between black and white is the cause of the bees acting so differently with these fowls.

Woodstock, Ont.

J. B. HALL.



# OUR HOMES

By A. I. Root

What God hath joined together, let not man put asunder.—  
MATT. 19:6.

This growing business in the way of divorces has worried and troubled me for a long time back. I am sure it is the result of misapprehension and misunderstanding; and it is Satan himself, the arch enemy of mankind, who is fostering and encouraging this uneasiness and discouragement between man and wife. This whole great world of people does not seem to realize or recognize the sacredness and the solemn responsibility that rests on the marriage ceremony. As it looks to me, there are three great events in every human life. The first is life itself, or we may call it birth—coming into this world of ours. The next great event, or perhaps the other great event, is death—the taking leave of this world and the closing up of human life. Now, we have but little to do with the matter of birth. Somebody has said we were not consulted in regard to the time or place and other circumstances. We have something to do with death, it is true; but most of us are powerless when we come to die, and, in fact, are almost as helpless as when we were born. But the third great and important event is, in my judgment, marriage. It should be regarded by both man and woman as the most sacred and solemn event that happens to them between *life and death*. Perhaps they do not always look at it in that way; but it is the planning and arranging for giving other human beings a glimpse of human life, through them.

A few days ago somebody sent me a little book, the title of which was, "How to Care for a Wife." All things considered, I do not know that I would want to recommend the book, especially for general reading. But there were some very good things in it. One especially was an earnest exhortation to all young people approaching maturity to consider marriage in the way I have been urging, as a sacred and solemn undertaking; that in choosing a partner for life each one should carefully consider the building-up of a home and rearing children who will be a credit to humanity and to our nation. While Mrs. Root and I were reading and discussing it, one of our daughters and her husband, and one or more of the young prattlers of their home, came in. I read an extract from the book, and asked the two young parents how many young people in contemplating marriage, or, say, during their courtship, look at the matter in that solemn and methodical way. Mr. Boyden burst out into a laugh and said, "There is not one couple in ten thousand that ever think of such things." I looked up at Mrs. Root and said, "Sue, when you and I were spending so much time together, say a year or two before our marriage, how much of an idea had we in our heads about rearing a family in the fear of God?" She laughed at the idea almost as loudly as did Mr. Boyden, and declared that she never gave even a thought to the responsibility of rearing a family. Perhaps neither one of us was ready just then for any such problem; but the dear Savior led us and taught us, and prepared us for the task, all in his own

good time, as the little strangers came into our home, sometimes a little faster than we two had planned to have them come. My attention has been called to this whole matter by an article in the *Ladies' Home Journal* for August. The title of the article is, "Why I Would Not Marry My Husband Again." Mrs. Root read a part of it to me just as I was getting ready to go to sleep; but before she got very far I raised up in bed and said with vehemence, "Sue, that article should never have been written. The *Ladies' Home Journal* made a mistake and a blunder in giving place to it. It is treason against all humanity. No wife and no husband should ever let the thought enter the head or consider for a *moment* such a question." Mrs. Root smiled a little at my vehemence, and a little later gave me a big smile that gave my heart a thrill when she asked very quietly, "Would *you*, my husband, choose the same wife if *you* had your life to live over again?"

She knew, bless her dear heart, what the answer would be, when I replied, before she had hardly finished her question, "Yes, to be *sure* I would. You know, dear old comrade and partner, that I would not trade you off for any other woman or for *all* the other women the world has to offer." Perhaps it was my turn to turn around and ask her the same question; but I knew what the answer would be, without asking. May God be praised that Satan with all his machinery and band of helpers has no power to shake or weaken in the least our love and trust in each other. But, dear friends, as I look out on the world and remember the experience of years past, I again still feel sorry that this question has ever come up. I can remember too many cases where the husband and wife did not seem to be greatly attached to each other. Some of them did not get the one they wanted, and some of them finally took up somebody else because they could not do any better. This latter course is all right. I believe in people getting married, even if they do not succeed in getting just the companion they wanted. Often death takes the loved one away. Shall the other go through life single, out of respect to the memory of the departed one? Not so. God sent us into this world to help the world along; and no person can really be in the harness, and be one of the world's efficient workers, until that person is married and has children. If God does not see fit to send the children, then let them take some of the children who have no father or mother and bring them up in the fear of the Lord.

What would you think of the woman who would go through life comparing her own husband with other men to his disadvantage, and saying to herself, "Now, if *that* man had been my husband I might have had some chance to amount to something. As it is, what is the use?"

Some women do have such thoughts in their mind. I have seen some so foolish that they even talked it to their neighbors. I know some wives have great trials, but so have some men; but let them remember the words of our text, and let them strive to be loyal to God and loyal to the companion God has given them. Perhaps some of you may say, "God did not do the giving. It was my own blundering when I made

the choice." That does not make any difference, my friend. You once stood up before one of God's ministering servants and took the most solemn oath ever assumed in all your life to "love, cherish, and protect." I do not know just the words you used, but doubtless you remember them. These words and this oath were not taken before the court of men. It was before the great Father above, who created us in his own image. Let me beg of you, dear friends, to believe I am speaking the truth when I declare it was the most solemn and sacred promise you ever gave to *anybody* in your life; and your happiness here on earth and in the world to come depends on how faithfully you keep this promise. For the sake of the children, the fruit of your union, if for nothing else, remember that sacred obligation and be faithful to it to the last.

Ernest and our good pastor both laughed at the idea that I objected to even the discussion of this matter as it is discussed in the *Home Journal*. They suggested that a woman may not have written it; but I claim that it is *poison* all the same, and I *am* sorry it ever came up. It is true there are some good lessons suggested in it. For instance, this husband under discussion used tobacco, and I want to make an extract from what his wife says about it:

I am perfectly willing that my husband should smoke, but in some degree of moderation. Instead of that he smokes inordinately—it is cigar after cigar, pipe after pipe, until the room is so charged with smoke that I simply can not breathe. It is not the smoke I object to so much, I think, as the absolute lack of consideration for me on his part—his unwillingness to curb a growing selfish habit in the slightest degree. His lips and his mustache invariably reek with the fumes of tobacco, and he knows that I kiss him mechanically. Why do I kiss him at all? I know no better answer to this than that he is all I have. Even with all his lacks and with a realization of all his sins against me, I am glad, I suppose, that he kisses me at all.

Now, the above is a big clip at the tobacco habit. It seems to me the man who loves his wife, especially if he is a Christian man, would give up the habit for his wife's sake if for nothing else. But suppose he does not give it up—suppose he keeps right on; is his wife excusable for saying if she had it to do over again she would marry somebody else? She is not excusable. Even the tobacco habit, much as I dislike it, is not a sufficient reason for divorce\*, nor for the mother to let even the *thought* enter her mind for an instant, that, if she had her life to live over again, she would marry somebody else. It is infidelity to the marriage vow and the marriage obligation. It is opening the door to Satan and letting him come in with other suggestions; and when he once gets a hold of a human heart there is no letting up, and finally comes separation, perhaps divorce, and oftentimes murder. How many times we have read in the papers where some man and woman have connived together to poison or put out of the way the obstacle (in the way of *husband or wife*) whose presence, let us say, prevents Satan from carrying out his plans!

Some years ago, in these very Home papers, I quoted the old proverb that "love will not go where it is sent," and I declared with all the ve-

hemence I could muster that the saying was one of Satan's falsehoods. Love *will* go "where it is sent." The man or woman who has been persuaded by the Devil (for he is the one who does all this kind of work) that she does not like or love her lawful companion, can, if he or she so decides, turn about and love the one he or she is in duty bound before God to love and cherish. Dear friends, I have had some experience along this line during the years God has permitted me to live. While Mrs. Root has one of the gentlest and most lovable dispositions in the world, she has also, when circumstances bring it out, about as stubborn a disposition as any of us. Were it not so, she would not have brought up her five children and made them "toe the mark" as she has done. Well, years ago, when we did not know each other as we do now, especially before I became a Christian, there were some clashings. I remember a time when I had been praying most earnestly in regard to some differences between us; but I asked the Lord to help me, and he did lead me. The outcome of it was a complete surrender. Probably a surrender on both sides—I can not exactly remember, but she said something like this: "Dear husband, when you love me and treat me with the kindness and consideration you have shown of late, I feel as if I could go through fire and water to do any thing you wish to have me do." Then in a little while this love and kindness are reciprocated in a way that made me think, if I did not say it out loud, "Bless the dear little woman! If I too would not go through fire and water to please *her*, I should be most heartily ashamed of myself."

Just a word more in regard to this matter of love that will not go where it is sent. Dime novels and some silly poems tell us about people who have been "true to the last." Because they could not have the one they wanted they went through life on the mourners' bench. I told you about Dick Bassett up on the island near our northern home. His girl would not have him, and so he went off and lived all alone on the island for *eight years*, just for spite. Finally she relented and went to live with him on the island. When he finally got the girl his fond ambition had pictured all those eight years, according to the dime novels they ought to have lived in blissful happiness evermore; but, if I remember correctly, she very soon declared she was not going to be cooped up on that island for him or anybody else. Then they tried living on the mainland, and finally decided they could not live together comfortably anywhere. Perhaps another divorce ensued—I do not remember.

Now I hope a couple of good friends of mine will excuse me if I mention a little romance that came under my observation. May be I do not know all about it, but I guess I have the main part of it about correct.

Some fifty years ago a boy and girl who were going to school together became acquainted, and were finally engaged to be married. I think some of the parents objected because the children were too young. As usual, they had a disagreement after a time, and each one was too proud to relent, and so they separated. The young man went to a distant State, and was gone quite a spell. But after a time he felt that perhaps he was to blame, and he came back to that country

\*Much as I dislike and deplore the use of tobacco I am not sure but that, in the sight of God, this woman is more to blame than her poor husband. I mean that she is to blame for deliberately summing up his shortcomings. If Mrs. Root should set seriously about it, and make a business of compiling a list of my faults and failings, knowing me, as she does, better than anybody else in the world, I should fear for the result.



schoolhouse; but the girl had gone, nobody knew where. Perhaps she covered up her tracks for spite. He did not succeed in finding her. Perhaps he thought she might let him know where she was. Time passed, and he married somebody else in a distant land, and she also married somebody else. Both of them brought up a family; but, if I am correct about it, each of them kept looking back to that boyhood and girlhood courtship, and perhaps thought how much happier they would have been had things turned out otherwise. Now, this was all wrong. It is as wicked for the father and mother of a family to look back in that way as it was for Lot's wife to disobey Jehovah's command by "looking back." When we are once married, especially after we have had children, it is in one sense a *crime* to look back. It is treason to the partner to whom you have promised to be true. Well, now for the rest of my romance. Forty years have passed. The man lost his wife, and later the girl (or elderly woman) lost her husband. Although more than a thousand miles apart they two found out about it, corresponded, and then got together and were married. After all the years and some "heart-breaking anguish" (I wonder if I am putting it too strong) they talked over their old misunderstandings, begged each other's pardon, and stood together hand in hand. It looked as if both had become young again. I ventured a little caution. I said, in substance, "My friends, I am rejoiced to see you two happily united; but may I suggest to each one of you that you are now old people? You have both lived to see a good share of human life. You have settled down into ways and notions that are not easy to break or overcome. It will not be so easy for you to learn new things now as when you were boy and girl in that old schoolhouse. May God watch over you both, and bless and guide you."

The man had a home, and owned property in Arizona. He had lived there a great part of his life. The new wife was accustomed to a cold climate, where she had lived all of her life. When I asked how they were going to manage things she said to me, and perhaps partly in pleasantry, that, "for the sake of being with *him*, she was willing to go to the ends of the earth," etc. Well, she tried it for a little time in Arizona, where the temperature is often 110 to 112 degrees in the shade; but as she is a rather large heavy woman the desert heat seemed to be rather depressing on the romance of their honeymoon. Then he, like a good husband, came back and tried one winter in the cold climate of the North. But I fear that the zero temperature was as severe on *his* romantic ideas of early life as the desert heat was on hers; and just at present there is more than a thousand miles between them. I do not mean that there has been any *disagreement* between the two. God forbid! but when they two came to take a sensible view, as all people ought to be able to do at their age, it seemed more convenient for them to live apart than to live together.

Now, the moral I would draw from this, and from all other events of a similar nature, is that young people and sometimes middle-aged (and may be elderly ones) get a foolish notion into their heads that they "can not live" unless they

can live together. Then they soon get *another* equally foolish notion, that "they can not *live*" unless they are *separated*. A great part of this is imagination. Love *will* go where it is sent. It is your duty to love, cherish, and protect your mother as long as she lives; and this is true, even though she should not happen to be one of the most lovable mothers in the world. The same is true with the father, and with the children. God gave us our fathers and mothers, and to some he gave children. We can not escape the responsibility that God has laid upon us; and when two parties are united in the holy bonds of marriage, it should be recognized in the same way. "What God hath joined together, let not man put asunder." In conclusion I wish to make a clipping from an article in the *Medina Gazette*, being one of a series written for that paper by my good friend W. P. Root, who is just now taking down these words:

In the consideration of divorce there is one factor I have not yet alluded to; and that is, that matrimonial dividend known as the family baby. If there is one thing that should cause parents to overlook the shortcomings and misdemeanors of each other it is the helpless babe in the crib, smiling as it recognizes its father as he returns home, and then bestowing another smile, equally pleasant, on the mother who has watched it all day. If that infant has a right to its two eyes and its two feet it has an equal right to its two parents; and when I say parents I do not mean simply bearers or breeders, as the word primarily meant, but two guardians who will so nurture it as to develop the good and suppress the evil—or, rather, turn all the child's faculties into a good channel; for what are called bad traits are simply good ones perverted.

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## HIGH-PRESSURE GARDENING

By A. I. Root

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A STORY WITH A MORAL—DOES IT HIT YOU?

Mr. Calvert, my son-in-law, recently purchased a piece of land adjoining his home. This land had been cropped to death without proper manuring, especially at the back end of the lot; but we planted in it some field corn in order to get a start and work it up. A few days ago I was looking it over, and talking with a man after he had cultivated and hoed it. I said:

"Why, look here, Mr. Weibly, what does this mean? Here are two spots of magnificent-looking corn away ahead of all the rest. What is the reason—how does it happen?"

"Why, Mr. Root, that is where I put two wheelbarrowloads of manure that I got out of Mr. Calvert's poultry-house, and spread it around on top of the ground; and with the cultivating and hoeing, and the plenty of rain we have had, it has just rotted and is working down to the roots of the corn."

It was indeed an astonishing object-lesson, and shows that manure from the poultry-house, if properly applied, is no small asset to the business, besides the eggs and fowls for meat.

A few days later, when our folks went down to cut our beautiful piece of timothy, grown on the Clark system, I was much astonished to find two spots near Mr. Boyden's residence (another son-in-law), where there was no timothy nor any thing else. The heads of timothy around these spots were almost as high as my head. While I

was looking at the team I carelessly stepped in one of these spots, and soiled my shoes with an awful-smelling stuff that looked something like tar after it has been running out in the sun. This was not one of my "pleasant surprises" like the other. It was a rather *unpleasant* surprise. I called out again to Mr. Weibly, and said:

"Mr. W., what does this mean? What is this stuff, any way, that I have just stepped into?"

"Why, Mr. Root, I think it must be where somebody has emptied a load of poultry manure that he cleaned out of Mr. Boyden's poultry-house."

"Do you know who it was that dumped a wheelbarrow load of manure all down in one spot like this?"

"No, I do not know who did it. I suppose Mr. Boyden told one of the men to clean out the poultry-house, and did not tell him where to put it; so he just put it over on to your meadow and dumped it all in a heap, or, rather, two heaps."

Now, friends, here is a big moral. If I am correct, the trade unions undertake to pay all sorts of workmen the same wages, or something like it, and there are some who think that those who work on a *farm* should all have the same pay. The man who spread the poultry-manure on the corn ground, and worked it in, even if he was *not* told so to do, should surely have better pay than the other one who just tipped his wheelbarrow over and spilled the strong valuable manure where it killed the timothy and every thing else. This strong manure was greatly needed on the garden, that was much nearer to the poultry-house, than the timothy-field. But if he decided to put it out on the grass land, why in the world did he not scatter it around, or, better still, hunt up a place where the ground looked poor.

Now, there are just such people in this world who are looking for a job. I think that in both cases the owners of the poultry-houses were to blame for not explaining further what the man should do with the scrapings from the roosts. Perhaps Mr. Calvert did explain—I do not know. Mr. Calvert and Mr. Boyden are both exceedingly busy men. Very often they hardly have time to give directions to the man who does outdoor work. Come to think, that is generally *my* job, and I ought to have looked after both of these men. But suppose the owner of the poultry-house did *not* stop to direct what should be done with the accumulations from the poultry-houses that had been left altogether too long. The man who carefully put it where it was needed, and did good, even if he was not told, generally speaking would be worth twice as much as the one who obeyed orders and dumped the contents in "any old place" in order to get it out of sight.

There, I almost forgot the moral to my story. I guess it will be something like this: When you set a man to clean out a poultry-house, be sure to tell him what to do with the contents—to spread them out over the ground where compost is needed and where it will do the most good. And, by the way, I do not believe I would let it accumulate until there is even *one* wheelbarrowful. Years ago we made a manure-shed according to T. B. Terry's plan; in fact, he planned it out for us; but the men who have the care of our team never liked it, and said it was in their way;

it got hot, and burned in spite of all the water they put on it; and so they have, for some years past, wheeled it out under an apple-tree. Just lately I succeeded in getting them to take it from the stables direct to the manure-spreader. When it gets full it is hauled out on the meadows. Now, the *Ohio Farmer* has recently had an article wherein the writer said manure taken right from the stables and put on to the fields with a spreader is worth *six times* as much as it is where piled outdoors and allowed to be leached by the rains until it rots. It seems that six times must be an exaggeration, but it may not be, after all. It is certainly a great saving of labor to take manure right from the stables to the manure-spreader, all under cover. Now, I am satisfied that there will be a great gain in handling poultry manure in something the same way. Perhaps a small manure-spreader, made for this purpose for establishments where poultry is kept by the hundreds, might be a paying investment. In Florida our poultry roosts up in the pine-trees; but even then the manure should be carefully scraped up, say before each heavy rain, or as near to it as you can manage it. If you do not do it, it will kill the tree and spoil the ground in time for any sort of vegetation. Mr. Weibly, whom I have before quoted, assures me he has known of apple-trees being killed outright, and others nearly killed by having a poultry-house under the tree year after year. I suppose it works in the same way that those wheelbarrow loads did that killed out the timothy where they were dumped.

#### A NEW KIND OF WHEAT THAT BEARS HEADS OF GRAIN AS LARGE AS EARS OF CORN, OR SOMETHING LIKE IT.

I was astonished (and pained) to find the following, given in the reading-columns of the *Manatee River Journal*, Florida. I clipped it out and sent it to our Ohio Experiment Station.

#### MIRACLE WHEAT; NEW VARIETY PRODUCED YIELDING 277 BUSHELS OF GRAIN TO THE ACRE.

Wheat with stalks like sugar cane and yielding 277 bushels of highly nutritious kernels to the acre has been produced as a result of experiments made in Idaho by Allen Adams, of Minneapolis.

The new wheat has been named "Alaska" because of its hardiness. It is either spring or winter wheat, just as the farmer desires to sow. It is so sturdy that storms that ruin other stock affect its giant stems but little, and the heads remain upright through ordinary hailstorms.

The yield shows that Adams has been able to obtain an increase of 222 fold. One head of the giant wheat was planted in the fall of 1904. The seeds from that head were planted the next year, and seven pounds of seeds obtained. This was sown in the spring of 1906, and from the seven pounds were harvested 1554 pounds that fall. In the fall of the same year he sowed it as winter wheat, but conditions were adverse. Almost all the "blue stem" and "club" were destroyed, and only a third of the crop of experimental wheat came to maturity, yet there was a yield of 50,000 pounds. A heavy hailstorm in July was the cause of the ruined wheat crop, which left scarcely any of the ordinary wheat standing.

Further experiments brought forth a yield of 277 bushels to an acre. The Idaho College of Agriculture has made a laboratory test of the wheat and reports the grain plump and sound, and that it should make better bread than does the ordinary wheat.—*Beloit Free Press*.

Here is what Professor Williams says in regard to it:

Dear Sir:—Prof. Green's secretary hands me your letter of the 11th inst. regarding the Miracle wheat, otherwise known as Alaska. We have received a number of inquiries within the last week or two regarding this wonder; but our knowledge of it dates back no further. On the face of it, it is, of course, a fraud of the rankest kind. Wheat that do well west of the Mississippi have never given satisfaction here; but it is open to doubt, of course, whether the Alaska gives satisfaction anywhere. I shall make



an earnest attempt to get hold of enough of it to test thoroughly among our some hundred varieties, but at present I do not know where to lay hands upon it. If you had not asked for the return of the clipping I should have liked to send it to the Idaho experiment station and note what they have to say in regard to it. Perhaps you will do so and let me know. The station is located at Moscow, Idaho.

C. G. WILLIAMS.

Wooster, Ohio, Aug. 13.

Of course we returned the clipping at once; and when our experiment stations get hold of some of the seed we shall all be happy—yes, even if we should not get *quite* 277 bushels to the acre. I give place to the whole matter here so that no one who reads GLEANINGS may be swindled by paying a great price for this new seed wheat.

*Later.*—We clip the following from the *Kansas Farmer*:

EX-GOVERNOR GLICK ON "ALASKA" WHEAT.

*Editor Kansas Farmer*:—I am pleased to see the *Kansas Farmer* expose that "Alaska" wheat scheme that certain parties are trying to work off on the farmers. This is an old fake that was worked off on the farmers of Ohio over sixty years ago. It was sold to them under the name of "Egyptian" wheat of wonderful prolificacy. Wonderful stories were told of the immenseness of crops it would produce, and bearing three to seven heads to the stalk. Many farmers bought the wheat and sowed it, but it proved to be worthless in Ohio. If the soil and climate of that State would not produce it, I do not think Kansas soil would do any better for it.

The second sowing seemed to end its vitality. I never saw over three or four heads on a stalk, and very few of them.

My father bought enough of this wheat to sow a half-acre, and two years' trial proved it to be worthless in Ohio, and I never knew a farmer to sow it after the second trial. If any Kansas farmer pays \$5 a pound for it he can join the procession of the crowd that invested in the coreless and seedless apple.

Atchison County.

G. W. GLICK.

## POULTRY DEPARTMENT

### HOPPER FEEDING AND AUTOMATIC WATERING FOR POULTRY, ETC.

On page 848 I gave you quite a description of this, and I now give you some views of it. See cut on page 1074.

You will notice my invention is not particularly different from the great variety of atmospheric watering-devices, except that it can be hung up on the wall out of the way, and the chickens can not get on top of it nor into it. As they grow in size it can easily be hung a little higher up on a suitable nail. Since we have had such warm weather I find the devices I have been sending out are so soon emptied, especially when the fowls get to be half grown, or larger, that something larger is needed. In fact, we have them made of the largest size of wash-basin to be found in the tin-shop. Well, another thing has come to pass. During the dry weather the bees from our apiary of several hundred hives discovered the "chick-waterer" is a very handy place for them also to get water. The result is just now that the bees empty the little utensil once a day or oftener; and this has suggested to me that, by using a syrup instead of water, the little pan would make quite a handy bee-feeder. Just drive a nail in one side of the hive and there you have it. If you feed very



WATERING-  
DEVICE.

heavily, however, the bees might build comb at each side of the feeder.

To go back to watering chickens, however, as my flock of 75 or 80 are now mostly half grown, it takes quite a lot of water during an August day; and the very best arrangement I have ever found yet is to have running water, or, what amounts to the same thing, dripping water. Have a pipe run into the poultry-yard, with a valve on it so you can set it so the water will drip just fast enough to keep up the supply for the fowls, and have a little dish running over more or less. If you have a supply of water from the regular waterworks, or from an elevated tank for the purpose, the arrangement is then automatic. A good deal has been said about scalding and thoroughly cleaning the drinking-utensils; but where your watering-dish is all the time running over I feel quite sure that no such scalding is needed. It should be high enough up so the chickens can not scratch filth into it; and on this account a separate watering-place had better be arranged for the little chicks. Have a wire-cloth pen around it with openings just large enough to let the little ones in and out; and this same wire-cloth inclosure should also contain chick feed and wheat, where the little chicks can always get in and help themselves; and have this inclosure large enough so that the larger fowls can not by any possibility reach in and nag the little fellows when they help themselves to feed and drink. And this latter remark reminds me of a letter I have just received. It reads:

I see in the last *Practical Farmer* something about your "hopper-feed" chickens. I should like to know how your hoppers are made, both for young chickens and fowls or older chickens. I have made several kinds of hoppers, and they are not satisfactory at all. They let the food down all right, but the chickens either pull the food out with their bills or scratch it out with their feet, thus wasting it.

I like dry feeding very well; so I wish you would kindly inform me about this; and, also, if it isn't any trouble, draw an outline and give dimensions of the hopper you use, both for young and old chickens.

Pocomoke City, Md.

W. C. MERRILL.

### HOW TO MAKE A HOPPER FEEDER FOR HOPPER- FEEDING CHICKENS.

Friend M., this opens up a question that has been a good deal discussed, and on which I have experimented quite a little. In a large chicken-range near Tampa, Fla., I found they used boxes of different sizes, procured at the grocery, to hold the dry mash, and, to keep the chickens from getting in, a piece of wire-cloth netting of about one-inch mesh is dropped loosely in the box. I used this quite successfully while in Florida. It is true the chickens can not scratch out the feed, but they can get in and stand in it. To prevent this, and also to keep out of the rain, we want some sort of cover, just high enough so the hens can reach up under. Each cover should be supported on a little post nailed in each corner of the box, and it should be removable to facilitate replenishing the feed. Now, this is all right so far as preventing waste, making the chickens eat it all up, and keeping out of the rain are concerned. But there is another trouble. Where you undertake to give your chickens grain enough to last them a whole week you will be sure to harbor rats and mice sooner or later. I am glad to say there are no mice in Florida—at least I never heard of any. Probably they will get around after a while, however; and I know of only one

way to circumvent rats and mice in hopper feeding, and that is to have your grain in some receptacle made of tin or sheet iron that is tall enough so they can not climb up or jump up the sides. A barrel would not answer, because rats and mice can climb up on the wooden hoops. Something like an extractor-can seems to answer the purpose. I do not know but an energetic rat might jump up and so get inside; but if rats did get in they would have a "picnic" in getting out again, and I do not know but it would be a good plan to use a can of such height, even if an occasional rat did get in. Then you can get a stick and give him such a scaring before you kill him that he would drive all the other rats out of the neighborhood. There is no better remedy for rats than to get a good lusty rat well cornered and make him squeal till the rest of the rats can hear him. Where a rat can not get in, of course mice will make no trouble.

We are now coming pretty close to the matter of poultry food. A great many, even farmers, are now buying mixed feed made of all sorts of grain, and this answers tiptop—very likely better than any one kind of grain alone; but, my good friends, if you will examine any of the much advertised mixed foods on the market, including ever so many brands of baby-chick food, you will find it costs quite a little more to feed your poultry that way than if you purchased the very best kind of corn, wheat, or oats, or whatever you may use. These grains in the market are sold on a very small margin, because everybody knows what a farmer gets for his crops; but where you buy a *mixture* specially put up, especially if they put in some meat scraps, grit, etc., you can not tell any thing about how much profit the mixer gets. And now here is another point: I believe our experiment stations have decided that fowls do better where they can *choose* their own "balanced ration" than where somebody mixes it for them. I would suggest that you have, say, four of the tin cans I have mentioned. Get your tinner to make them of the very cheapest brand of tin he can get. Sometimes the tinner has rusty sheets that are not fit for regular work. These will answer all right, and for corn I would have them about as large as a common barrel; for wheat, one-half or two-thirds size; but have it tall enough to keep out rats; oats, the same size as for wheat; for buckwheat, one-fourth the capacity of the largest. Now, I like better to have a receptacle for *each kind* of grain instead of putting a mixture of all in one can only. And, by the way, these deep cans make the nicest kind of hens' nests. What boy is there who can not remember finding a hen's nest in a barrel, say a barrel half full of corn, oats, or wheat?

There is just one objection to this sort of hopper. The fowls will sometimes make it foul while eating. My experience is, however, that they do not do it very often. These feed-cans must, of course, be kept under shelter. I would want a little shelter, even in Florida, when heavy storms come up. As a rule, your hens' nests should also be under shelter. If you are going to get the top notch for your eggs, they should be gathered several times a day, and no rain should ever be allowed to touch them.

Now, if somebody can improve on what I have outlined for a method of hopper feeding—one

that prevents waste, and *absolutely* heads off rats and mice, I should be glad to receive his suggestions.\*

## HEALTH NOTES

ANOTHER TESTIMONIAL FOR T. B. TERRY AND HIS TEACHINGS.

I have taken the liberty of clipping the following from a private letter from the father of our business manager, J. T. Calvert. It indicates, as you will notice, that Terry's teachings apply away up in northern Canada as well as throughout the United States.

Perhaps I should explain to you that Mr. Robert G. Calvert, another son of the writer, has just informed me that for many years his father drank tea and coffee, mostly tea, at every meal, and followed the very common (but exceedingly unwholesome) practice of taking a little sip of tea or coffee with almost every mouthful of food. You will notice by his letter that he has broken square off from this way of taking his meals. Mr. Calvert is 76 years old. And now with this preface I give you this extract from his letter:

My health was never better. I am following T. B. Terry's advice on health notes in the *Practical Farmer*. I drink about two quarts of water daily between meals, and drink nothing at my meals, and chew food well. I eat no more than three or four kinds of food at a meal; stomach and bowels are in good order.

Reaboro, Ont., Aug. 10.

JOHN CALVERT.

## TEMPERANCE

"WHEN THE PARTY GOES WRONG."

That man is a dangerous citizen who so far mistakes means for ends as to become servile in his devotion to his party, and afraid to leave it when the party goes wrong.—

Theodore Roosevelt.

May the Lord be praised that we have a President who has grace and courage enough to stand out fearlessly and courageously and give utterance to a sentiment like the above.

VOTING FOR GOOD MEN.

I want to express a hearty amen to the following, which we clip from the *National Prohibitionist* of July 9:

In the General Conference at Baltimore, Md., on the twenty-fifth day of May just past, the Methodist Episcopal Church said:

"We record our deliberate judgment that no candidate for any office, which in any way may have to do with the liquor-traffic, has a right to expect, nor ought he to receive, the support of Christian men so long as he stands committed to the liquor interests or refuses to put himself in an attitude of open hostility to the saloon."

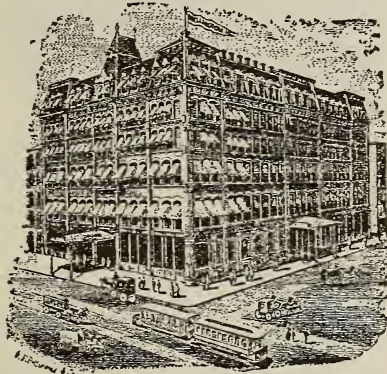
May God be praised for the Methodist Church; and may her people continue to grow in grace and increase in numbers.

\* After the above was in type it occurred to me that the arrangement I made to head off rats and mice would not stop the English sparrow and other birds from helping themselves *ad libitum*. At present I know of no way to head off the birds but to have the grain upstairs in the little poultry-house pictured on p. 638, May 15. With the wire screen overhead so the birds can not get through, it traps them every time—that is, if they get in where the chickens do, and find their way upstairs. After they have been caught a few times in this way, so far as my experience is concerned they are effectually cured of meddling with the wheat. Somebody suggests that the amount of grain the birds get is only trifling; but it is something more than a trifle in our locality.



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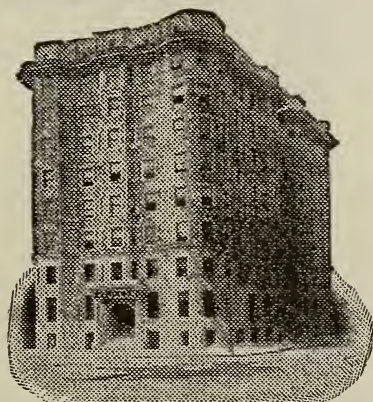
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**JOHN M. STAHL, Dept. G, QUINCY, ILL.**



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I am, yours truly,  
F. LAUTNER, Leelanau County.

**Send \$1.00 Today.** Let the Acme Attachment prove itself to you. Let it prove that your dollar is better than \$100 investment in other diggers—that it will dig potatoes better and more economically—that it is the digger you have been waiting for. *Send prepaid by express.* Money returned if you had rather have it than keep the digger. Pamphlet and Potato Book free on request. Send now. Address Box 520,

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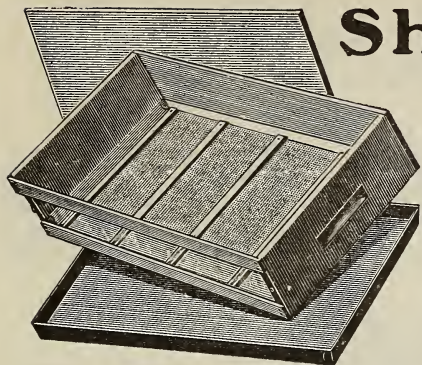
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| Select untested queens . . . . . | \$ .75 | \$4.00 | \$ 7.50 |
| Tested queens . . . . .          | 1.25   | 6.00   | 10.00   |
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Safe delivery and satisfaction guaranteed. Send for queen circular—it tells why Highland Farm queens are superior to others. Address all orders to

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And nothing but Italians. An improved superior strain is what QUIRIN-THE-QUEEN-BREEDER raises. Stock is Northern-bred and hardy—not a single colony lost during the past winter; have five yards, all wintered on summer stands. Am now taking off supers of nice white-capped clover honey. Prices of bees and queens as per below:

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All queens now go by return mail. Safe arrival and pure mating guaranteed. We employ 400 to 500 swarms. Can furnish bees on L. or Danz. frames. Add price of whatever queen is wanted to nuclei or colony. No order too large, and none too small. Over 20 years a queen-breeder. Address all orders to

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My stock is the result of years of careful selection, and is equal to any in the country. The prices are only such as to insure long-lived, prolific queens, whose workers will be hardy and good honey-gatherers. Write for 1908 circular. PRICES.

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| Untested . . . . .                               | \$1.00 | \$5.00 | \$9.00 |
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| Tested, \$1.75 each; select tested, \$2.00 each. |        |        |        |

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Fine young prolific 3 and 5 banded Italian queen, untested, only 75c; extra-fine queen, \$1; tested, \$1.25. Full colonies in 8-fr. hive, with queen, \$5.50; 3-fr. nucleus, with queen, \$2.75. Safe arrival guaranteed. Directions to introduce go with queen. Price list free.

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Rt. 8

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Are the bees that got the honey in 1907.

Better try them for 1908. Nuclei and full colonies a specialty. Price list on application.

HENRY SHAFFER, 2860 Harrison Ave., Sta. L. Cincinnati, O



## QUEENS of MOORE'S STRAIN OF ITALIANS

Produce workers that fill the supers, and are not inclined to swarm. They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc.

Mr. W. Z. Hutchinson, editor of the *Bee-keepers' Review*, Flint, Mich., says, "As workers, I have never seen them equaled. They seem possessed of a steady, quiet determination that enables them to lay up surplus ahead of others. Easier bees to handle I have never seen."

My queens are all bred from my best long-tongued three-banded red-clover stock (no other race bred in my apiaries), and the cells are built in strong colonies well supplied with young bees.

PRICES: Untested queens, 75 cts. each; six, \$4.00; doz., \$7.50. Select untested, \$1.00 each; six, \$5.00; doz., \$9.00.

I am filling orders by return mail.

Safe arrival and satisfaction guaranteed. Descriptive circular free. Address

J. P. Moore, queen-breeder, Rt. 1, Morgan, Ky.



## Queens

Golden and  
three-banded.

Wurth's queens take the lead everywhere; have 600 queens; can send by return mail; untested, 60 cts. each. Send for circular.

DANIEL WURTH, Rt 3, Fayetteville, Ark.

## Taylor's Strain of Italians IS THE BEST.

Long tongues and goldens are the best of honey-gatherers; 19 years a specialty, breeding for the best honey-gatherers. Untested, 75 cts. each, or \$8.00 a dozen; tested, \$1.00 each, or \$10.00 a dozen; select tested, \$1.50 each. Breeders, the very best, from \$3.00 to \$5.00 each. We sell nuclei in full colonies. Bees in separate yards. Safe arrival guaranteed. Send all orders to

J. W. TAYLOR & SON, Beeville, Bee County, Texas.



## RED-CLOVER QUEENS

200 lbs. honey from my breeding colony. Mostly red-clover honey. Untested queen, 75 cts.; tested, \$1.00; doz., \$7.00. Four-frame nuclei and fine tested queen, \$4. G Routzahn, Biglerville, Pa.

CHOICE

## QUEENS

ITALIANS AND CARNIOLANS.

1 untested, 75c; 12, \$7.50. 1 tested, \$1.00; 12, \$11.00.

1 selected tested, \$2.00. 1 breeder, \$3.00.

Nuclei, full colonies, and bees by the pound at low prices.

CHAS. KOEPPEN, Fredericksburg, Va.

## DOOLITTLE & CLARK

Are sending out fine Italian queens at the following prices:

Untested, \$1; 3, \$2.50; 12, \$9.00. Tested, \$2.00; 3, \$5.00; 12, \$18.00. Breeders, \$2.50, \$5.00, and \$10.00. Send for circular.

BORODINO, ONONDACA CO., N. Y.

Long-tongued

## Red-clover Queens

Bred by their Originator

Do you want to get some specimen queens of the world-famous red-clover stock of Italian bees? Then buy from me, because I am the originator, and surely ought to know how to breed them in their purity. When you get them from me you know you have the real strain. For years I have devoted time and skill to this stock, trying to reach perfection. I can submit many splendid testimonials in favor of this stock to show my work has not been in vain. Try them, and YOU will be pleased also. I endeavor to please the practical man looking for definite results in dollars and cents. Many years' experience as head apiarist of The A. I. Root Co. enables me to fill the most exacting order with complete satisfaction to the purchaser. Let me show you how well I can please you.

### Prices

|                        |                  |        |
|------------------------|------------------|--------|
| Untested queen         | June to October, | \$1 00 |
| Select untested queen  | "                | 1 25   |
| Tested queen           | "                | 2 00   |
| Select tested queen    | "                | 3 00   |
| Breeding queen         | "                | 5 00   |
| Select breeding queens | "                | 7 50   |
| Extra select           | 1 yr. old        | 10 00  |

F. J. Wardell

Uhrichsville, Ohio, U. S. A.

## 5000 QUEENS

of the famous 3-banded LONG-TONGUE RED-CLOVER STRAIN OF ITALIAN BEES is what I want to sell this season.

My bees GATHER HONEY if there is any to get; ARE LITTLE inclined to swarm and sting, they please such people as The A. I. Root Co., R. F. Holtermann, W. Z. Hutchinson, Morley Pettit, etc., and if they don't please you, send in your kick.

Queens of all grades now ready.

|                             | 1      | 6      | 12     |
|-----------------------------|--------|--------|--------|
| Untested queens.....        | \$1.00 | \$5.00 | \$9.00 |
| Select untested queens..... | 1.25   | 6.00   | 11.00  |
| Tested queens.....          | 1.50   | 8.00   | 15.00  |
| Select tested queens.....   | 2.00   | 11.00  | 20.00  |
| Breeders. \$5.00 to \$7.00. |        |        |        |

W. O. VICTOR (Queen Specialist), Hondo, Tex.

## QUEENS

of the Robey strain of three-banded Italians during the season of 1908. Warranted queens, 75 cts. each; \$4.25 per six; \$8.00 per doz. Tested queens, \$1.00 each. Satisfaction or money refunded.

L. H. ROBEY, Worthington, W. Va.

FOR SALE=Queens of my famous Red-clover stock.

Untested, 50 cts. each; select untested, 75 cents each; tested \$1.00 each. Nuclei, \$1.00 per frame. Golden queens, same price.

H. A. ROSS, 1709 Upper Second St., Evansville, Ind.

## CLASSIFIED ADVERTISEMENTS

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the classified columns or we will not be responsible for errors.

### Honey and Wax for Sale

FOR SALE.—"Gilt-edge" clover and raspberry honey at \$10.75 per 120-lb. case. N. B. K. A. new round cans (best package made), filled with Wisconsin's finest basswood honey at \$5.50 each. This honey remained sealed on the hives for weeks after the honey-flow, and is the most delicious, perfectly ripened article that can be produced at any price. Order to-day; and if you are not absolutely satisfied with this honey I will refund your money without asking any questions. Almost every sample sent this season has brought me an order. What pleases others will please you; therefore I do not charge for samples. If you appreciate a superior product at a reasonable price, let me hear from you. F. B. CAVANAGH, Boscobel, Wis.

FOR SALE.—To reduce stock I offer for sale as follows: 27 cases No. 40, and 44 cases No. 43 at \$10.80 per case of two 60-lb. (new) cans. This is a raspberry-basswood blend, and is the cream of two apiaries, being extracted from select all-sealed-upper stories. The partly full upper stories are being extracted by themselves (No. 38), and sold at a less price. Money can not buy better honey than lots No. 40 and 44. The above honey was gathered during June and the first half of July, and was extracted the week beginning Aug. 10. This left-on-the-hive-all-summer honey is sappy, rich, ripe. A free sample will convince you. Other lots at a less price; also a little comb honey left. E. D. TOWNSEND, Remus, Mich.

FOR SALE.—150 cases of No. 1 comb honey, 15 sections in 3-inch glass, no-drip cases, 6 cases in a crate, very fine, at \$2.00 per case, f. o. b. cars here. Also 8000 lbs. clover and basswood extracted, in new 60-lb. cans, 2 in case, very heavy body and fine flavor, at 8c, f. o. b. cars here. Sample free. Also extracted in 1-lb. Simplex jars, at \$2.00 per dozen. W. H. TOWNSEND, Hubbardston, Mich.

FOR SALE.—My new crop of white-clover extracted honey. Honey has been left in full charge of the bees for three weeks after harvest, and is rich, waxy, and of fine flavor, and is as good as a specialist can produce. Price is 9 c. per lb. by the case of 120 lbs. or for the entire crop. Cash to accompany order. LEONARD S. GRIGGS, 711 Avon St., Flint, Mich.

FOR SALE.—Aug. 16 we finished taking off our clover, basswood, and button-willow honey. It is principally clover, fine and rich. Delivered at station in 60-lb. square cans, two cans to case; 8½ cts. per lb. Reference, our postmaster or agent, Lakeville, St. Joseph Co., Ind., at which place address C. A. BUNCH.

FOR SALE.—New crop of fancy white-clover extracted honey, thoroughly ripened on the hives before extracting. None of better quality on the market. Put up in barrels, new 60-lb. tin cans, and smaller packages if desired. For prices, etc., address EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—5000 lbs. of clover and amber honey in 160-lb. kegs. C. J. BALDRIDGE, Homestead Farm, Kendaia, N. Y.

FOR SALE.—5 tons of fine-quality comb and extracted. State amount you wish, and we will quote you our lowest cash price. QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

FOR SALE.—Choice white extracted honey, mostly clover and raspberry mixed, in new 60-lb. cans. Price on application. Sample, 10 cts. JAMES McNEILL, Hudson, N. Y.

FOR SALE.—Fancy clover extracted honey in new cans, two in a case. Send 10 cts. for sample, which may be deducted from first order. EARL RULISON, Rt. 1, Amsterdam, N. Y.

FOR SALE.—Write for prices on clover, basswood, and buckwheat honey in 60-lb. cans and kegs; also comb honey and beeswax, all guaranteed to be pure. W. L. COGGSHALL, Groton, N. Y.

FOR SALE.—Choice extracted honey for table use, gathered from clover and basswood—thick, well ripened, delicious flavor. Price 9 cts. per lb. in 60-lb. cans, two to case. Sample, 10 cts. J. P. MOORE, Queen-breeder, Morgan Ky.

FOR SALE.—I have 12,000 lbs. of fancy white-clover comb honey, put up in no-drip shipping-cases, crated for sale. R. A. ELLISTON, Princeton, Ill., Rt. 5.

FOR SALE.—600 lbs. choice white-clover honey in 60-lb. cans. R. HILLMAN, 1225 E. Eighth St., Brooklyn, N. Y.

FOR SALE.—White-clover honey of the finest quality, in new cans, boxed single, and holding 58 lbs. net each. Price per can, \$5.50. Postpaid sample, 6 cts. R. & E. C. PORTER, The Bee-escape Folks, Lewistown, Ill.

WANTED.—Fancy-white clover honey, comb and extracted. BARRACKMAN & ROWE, Decatur, Ill., Rt. 2.

FOR SALE.—Carload of alfalfa honey in 5-gallon square cans. WM. McKIBBEN, Ontario, Ore.

FOR SALE.—Honey, clover, or buckwheat, comb or extracted. Write for price. Sample of clover extracted free. State quantity and quality desired. C. B. HOWARD, Romulus, N. Y.

FOR SALE.—Choice extracted clover honey for table use, in new square cans. C. F. LUFT, Ada, Ohio.

### Honey and Wax Wanted

WANTED.—25 tons of fancy comb honey. Write, stating particulars, to C. M. CHURCH, New Kensington, Pa.

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT, 199 South Water Street, Chicago, Ill.

WANTED.—Comb and extracted honey, any quantity. Alfalfa clover preferred. THE FRISBEE HONEY CO., Box 1014, Denver, Colo.

Mail small sample, giving quantity you have, how put up, and lowest cash price you will take for it. E. R. PAHL & Co., Milwaukee, Wis.

WANTED.—We are in the market for No. 1 white-extracted honey in any quantity. Correspondence solicited. State kind, quantity, and price asked. We also have for sale 60-lb. honey-cans, 2 cans in case. Both cans and cases in A1 condition, at 30 cts. per case. MICHIGAN WHITE CLOVER HONEY CO., 31-33 Griswold St., Detroit, Mich.

### Real Estate for Bee-keepers

FOR SALE.—Farm of 14 acres near city of 20,000; good soil, market, and bee pasture. L. C. HOOK Richmond, Ind., Rt. 3.

FOR SALE.—Fruit and vegetable farm; poultry and bees; healthy location; price \$3500. R. ADDISON, Loughman, Fla.

FOR SALE.—A good paying bee business in Minnesota; with or without real estate; 400 colonies Italian bees, with all necessary up-to-date appliances. A B C, care A. I. ROOT Co., Medina, Ohio.

FOR SALE OR RENT.—Bee-hive factory; waterpower, 85-horse capacity; trackage, yardage, 93,000 feet floor-space. Native basswood for sections can be bought for \$3.00 to \$5.00 per cord. Thick soft white pine for hives available at less than Eastern price. If interested, come. W. H. PUTNAM, River Falls, Wis.

FOR SALE.—A 41-acre farm, improved; six-room house, one mile from county-seat. Also 500 colonies bees; fine condition; no disease. For particulars address B. F. YANCEY & SON, Angleton, Tex.

FOR SALE OR RENT.—Farm, with 86 acres; 30 colonies of bees if desired; good fruit, fine water; 60 acres can be plowed; one mile from town; 10 minutes walk from Conneaut and Erie trolley line. Address W. E. PATTERSON, E. Springfield, Erie Co., Pa.

FOR SALE.—6 acres of land, 200 yards from flag station on railroad; 34 colonies bees; local honey trade; no opposition. Address K. B. MORRIS, Whiteville, N. C., Rt. 3.



## Bees and Queens

FOR SALE.—Italian queens, untested, 50 cts. each.

W. SIMPSON, Meyer, Ill.

FOR SALE.—125 colonies of Italian bees, with honey, cheap.  
F. M. JONES, 21 Price Ave., Lockport, N. Y.

Golden Italian queens by return mail, untested, 50 cts.; tested,  
\$1.00. D. T. GASTER, Rt. 2, Randleman, N. C.

FOR SALE.—25 colonies of bees in Danzenbaker divisible  
hives. LEE A. WARNE, Waterloo, N. Y.

FOR SALE.—88 colonies of bees in a good bee location.  
A. L. JOHNS, Harrisburg, Ark.

FOR SALE.—Mismatched Italians at 25 cts. each.  
C. G. FENN, Washington, Conn.

FOR SALE.—Fine select untested Red-clover and Golden  
Italian queens, 60 cts. each. F. M. MAYBERRY, Lederach, Pa.

FOR SALE.—50 stands of bees on wired frames, in Root's 8-  
frame chaff hives. Inquire of SAMUEL WILTSIE, Payne, O.

FOR SALE.—Select Italian queens, large and vigorous; bred  
for business; by return mail, 75 cts. each; 6 for \$4.00; dozen,  
\$7.25. Address J. R. McCORKLE, Wingate, Ind. Rt. 5.

FOR SALE.—Improved Italian and Golden Mortgage-lifter  
queens. Tested and untested, \$1.00 to \$3.00.  
BEST THE BEE-MAN, Slatington, Pa.

FOR SALE.—Italian, Carniolan, and Caucasian queens. Un-  
tested, 75 cts.; 12, \$8.50; virgins, 40 cts.; 12, \$4.50. Stamps not  
accepted. EDWARD REDDOUT, Baldwinville, N. Y. G

FOR SALE.—Ten colonies beautiful golden-all-over and Car-  
niolan bees; also hives, bee-books, etc. No disease.  
S. I. TRASHER, Huntington, Mass., Littleville, Mass.

FOR SALE.—40 colonies of Italian bees in 10-frame L. hives,  
at \$5.00 each; one 2-frame Cowan extractor, new, \$10.00; 50  
empty Danz. supers at 50 cts. EDWARD TRENT, Butler, N. J.

FOR SALE.—First-class apiary of 120 colonies with all sup-  
plies. Write for particulars to  
J. B. HALL, Box 595, Woodstock, Ont., Can.

FOI SALE.—30 colonies of three-banded Italian bees, all in  
modern hives and in good condition. Address  
WARNER'S BUSINESS SCHOOL, Elmira, N. Y.

FOR SALE.—Italian bees and queens now ready. Untested,  
\$1.00; tested, \$1.50. Bee-keepers' supplies, Root's goods. Send  
for prices. Eggs from Silver-laced Wyandotte poultry.  
N. V. LONG, Biscoe, N. C.

FOR SALE.—Untested Italian queens, 50 cts.; tes ed, \$1.00;  
also one Novice honey-extractor and one Ferris wax-extractor,  
good as new. Cheap. For particulars address  
W. J. FOREHAND, Fort Deposit, Ala.

FOR SALE.—Bees, 300 full colonies, first-class hives, each  
\$3.75; three for \$11.00. No disease. Must sell this fall. Empty  
Dov'd hives, \$1.00; supers, 25 cts.; 4-frame extractor, \$18.00  
Other supplies. Extracted basswood honey, 10 cts. per lb.  
L. M. GULDEN, Osakis, Minn.

FOR SALE.—To the highest cash bidder: 300 colonies in 10-  
fr. hives with 400 Danz. trimmed supers, 60 extracting-supers.  
extractor, 200 shipping-cases, 6000 trimmed Danz. sections, all  
Root goods; colonies heavy with honey, and crop on the hives,  
Red-clover bees. All bids must be in by Sept. 10.  
H. A. ROSS, 1709 Upper Second St., Evansville, Ind.

FOR SALE.—350 colonies of bees in first-class order on easy  
terms. I would also sell an 82-acre farm, all in the best cultiva-  
tion; three acres in orchard and good out-buildings. I would sell  
the same in 5 and 10 acre tracts on part payments. It is two  
miles from Caldwell, where the great government project is estab-  
lished. Caldwell is the liveliest city in Idaho. Great work is  
developing. I also offer a 9-room house and barn, and one block  
within half a mile of the main street, where I keep one of my  
yards of fancy poultry, also one river-bottom farm, 240 acres, rich  
soil, and good water-right; good location for bees. Write for  
particulars, as I can give you any information desired, for I have  
been in this country 24 years. OTTO GEISE, Caldwell, Idaho

FOR SALE.—Selected young Italian queens, bred for superiority  
in honey production. Single queen, 75 cts.; 6 for \$4.00; one  
dozen, \$7.50. Also golden-all-over, Cyprians, Carniolans, and  
Caucasians. JULIUS HAPPEL, 414 Fourth St., Evansville, Ind.

FOR SALE.—A choice lot of Italian queens, very yellow,  
reared from the Henry Alley Adel stock. Queens, \$1.00 each.  
A. D. TUTTLE, 114 Portland St., Haverhill, Mass.

FOR SALE.—Moore's strain and golden Italian queens, un-  
tested, \$1.00; six, \$4.00; twelve, \$7.00. Carniolan, Banat, and  
Caucasian queens, select, \$1.00; six, \$5.00. Tested, any kind,  
\$1.25; six, \$6.00. Choice breeding queens, \$3.00 each. Circu-  
lar free. W. H. RAILS, Orange, Cal.

## For Sale

FOR SALE.—Tasmanian necklace shells, any quantity. Sam-  
ple sent. G. H. SMITH, Ramsgate, Tasmania.

FOR SALE.—Orient motor buckboard, good running order,  
\$100. W. J. TILYU, Vanhornsville, N. Y.

FOR SALE.—Sweet-clover seed, 15 cts. per pound, postage ex-  
tra. Root's supplies. ANTON G. ANDERSON, Holden, Mo.

FOR SALE.—Honey-extractor holding two frames.  
MRS. J. R. ATCHINSON, London, O.

FOR SALE.—A full line of bee-keepers' supplies; also Italian  
bees and honey a specialty. Write for catalog and particulars.  
W. P. SMITH, Penn, Miss.

FOR SALE.—Beautiful long-haired Persian and Angora cats  
and kittens; solid whites and various colors; none better.  
Send stamp for written reply.  
KENSINGTON CATTERY, Marion, Ohio.

FOR SALE.—If you want an illustrated and descriptive cata-  
log of bee-keepers' supplies for 1907 send your name and ad-  
dress to FRANK S. STEPHENS,  
(Root's Goods.) Paden City, W. Va.

FOR SALE.—200 cases of 5-gallon cans. All are free from  
rust inside, and the majority have been used but once. Two cans  
in a case; 10 cases or more, 25 cts. per case.  
J. E. CRANE & SON, Middlebury, Vermont.

FOR SALE.—About 1300 or 1400 cases, two five-gallon cans  
each, practically free from nail-holes, and were new tins when  
originally shipped to us. Make us an offer.  
CLEVELAND HEALTH FOOD CO., Cleveland, O.

## Poultry Offers

A. I. Root's Bee-goods, Poultry-supplies, Seeds, etc.  
STAPLER'S, 412-414 Ferry St., Pittsburgh, Pa.

## Wants and Exchanges

WANTED.—Refuse from wax-extractors and old comb for cash.  
ARCHIE COGGSHALL, Groton, N. Y.

WANTED.—Refuse from the wax-extractor, or slumgum  
State quantity and price. ORREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

## Bee-keepers' Directory

I no longer club a queen with GLEANINGS.  
W. T. CRAWFORD, Hineston, La.

Bee-keepers' Supply Co., Lincoln, Neb. We buy car lots of  
Root's goods. Save freight. Write.

ITALIAN QUEENS from imported mothers; red-clover strain,  
\$1. A. W. YATES, 3 Chapman St., Hartford, Ct.

ITALIANS, CARNIOLANS. No disease. Two-comb nucleus with queen, \$3.00. A. L. AMOS, Comstock, Nebraska.

GOLDEN yellow Italian queens—my specialty. Price list free. E. E. LAWRENCE, Doniphan, Mo.

ROOT'S BEE SUPPLIES. Send for catalog. D. COOLEY, Kendall, Mich.

Mott's long-tongues by return mail, also goldens—hardy, yet gentle, but little or no smoke. E. E. MOTT, Glenwood, Mich.

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York City.

For bee-smoker and honey-knife circular send card to T. F. BINGHAM, Farwell, Mich.

ITALIAN BEES, queens, honey, and Root's bee-keepers' supplies. ALISO APIARY, El Toro, Cal.

Golden-all-over and red-clover Italian queens; circular ready. W. A. SHUFF, 4426 Osage Ave., Philadelphia, Pa.

Order your bee-supplies from Superior Honey Co., Ogden, Utah, at Root's catalog prices. You save time and money. Largest dealers in the West.

Root's bee-supplies at factory prices, *Black Diamond Brand Honey*, and *bee-literature*. Catalog and circulars free. GEO. S. GRAFFAM & BRO., Bangor, Maine.

Have you seen Hand's queen circular? It's an eye-opener. Your address on a postal card will bring it. It will pay you to send for it. J. E. HAND, Birmingham, Erie Co., Ohio.

QUEENS.—Improved red-clover Italians, bred for business, June 1 to Nov. 15, untested queens, 60 cts.; select, 75 cts.; tested, \$1.00 each. Safe arrival and satisfaction guaranteed. H. C. CLEMONS, Boyd, Ky.

Improved Italian queens now ready. Nuclei and colonies May 1 to 10. Over twenty years a breeder; 500 colonies to draw on. Free circulars and testimonials. For prices see large advertisement in this issue.

QUIRIN-THE-QUEEN-BREEDER, Bellevue, O.

ITALIAN BEES AND QUEENS. I breed three-banded stock only, and use the finest breeding stock to be had. For prices, see display advertising columns in this issue. Send for price list. Twenty-five years' experience.

F. J. WARDELL, Uhrichsville, O.

TENNESSEE QUEENS.—Best that experience can produce. Untested three-band and goldens, \$1.00 each; 6 for \$5.00; 12 for \$9.00. Caucasians, \$1.25 each. Write for circular; order goldens from Ben G. Davis; others from John M. Davis, Spring Hill, Tenn.

Breeding queens of pure Caucasian and Carniolan races—price \$3.00. Order from A. E. Titoff, Expert in Apiculture, with Russian Department of Agriculture, Kieff, Russia. Remit with orders. Correspondence in English.

## SPECIAL NOTICES

BY OUR BUSINESS MANAGER

### WHITE SWEET-CLOVER SEED.

We have not yet secured enough white sweet-clover seed to supply our needs for the coming year. As this is the time for gathering it, we would be pleased to hear from those who have gathered, or can gather, seed which they have not sold. If gathered, mail sample, stating quantity you can furnish, whether hulled or unhulled. We have already contracted enough seed of the yellow variety.

### HONEY WANTED.

Notwithstanding the good crop of honey secured in most localities we have secured very little so far. We are getting numerous inquiries, and do not have the honey at hand to supply them. We would be pleased to get samples by mail, of extracted clover honey, with offers stating quantity and how packed. Write us, also with offers on choice comb honey, stating how packed, quantity, and grade, and the price asked.

### HANGER-CLEATS IN DANZ. HIVES AND SUPERS.

Instead of the usual hanger-cleat for Danz, brood-chambers and supers made  $\frac{3}{8}$  wide and  $\frac{1}{8}$  thick we are planning to furnish a cleat  $\frac{3}{8}$  inch square let into a groove  $\frac{1}{4}$  deep inside of the end of supers and bodies, as a support for frames and section-holders. This will leave  $\frac{3}{8}$  inch space between frames or section-holder and end of hive or super above and below this cleat. As the bees have not bothered building bits of comb in this space above the hanger-cleat in the past, we do not believe they will do so below the cleat. Considerable material is saved, and the narrower support will facilitate the easy handling of frames and section-holders. If any one fears the result of so much space, a piece 3 inches wide by  $\frac{1}{4}$  inch thick could be nailed in below the cleat, reducing the bee-space to  $\frac{3}{8}$  inch, and adding that much to the thickness of the end of the super or hive-body.

### UNTESTED QUEENS.

We desire again to call attention to the fact that the past season was exceptionally favorable to the production of high-class queens, both as regards quality and quantity. For this reason we believe this presents a golden opportunity for many bee-keepers whose queens are failing from old age or hard work. By inserting a young queen in place of an old one we secure a sort of insurance for next year. A young queen winters better, commences to lay earlier, and is less likely to swarm next breeding season. Moreover, there is always a probability of an old queen dying at a very inconvenient season when queens are very difficult to procure. Just at present queens can be bought for little money and may be introduced easily because the supers are off in most apiaries. We have a large stock of untested queens ready to mail, so there will be no delay; in fact, will ship by return mail when so ordered. Price of one queen, \$1.00; six, \$5.00; twelve, \$10.00. Prices quoted on lots of 50 or 100.

### DISCOUNTS FOR EARLY CASH ORDERS.

As usual at this season of the year we are prepared to reward those forehanded people who not only have faith in the future but who can tell before their bees begin to swarm in the spring something near what they are likely to need for the coming season—people who like to avoid the worry of delay in the hands of the transportation companies or excessive express charges on goods ordered the last minute because they can not wait for freight to arrive—people who prefer to take leisure time during winter to prepare the supplies for use the coming season. After such a bountiful honey crop as has been gathered in most sections the past season there ought to be a much larger number than usual who will take advantage of the liberal early-order discounts which we are offering for out-of-season cash orders. On all orders accompanied by cash received during the month of September, and subject to conditions named below, we allow 7 per cent discount.

On October cash orders we allow 6 per cent discount.

|              |   |   |   |   |   |   |   |
|--------------|---|---|---|---|---|---|---|
| " November " | " | " | " | " | 5 | " | " |
| " December " | " | " | " | " | 4 | " | " |
| " January "  | " | " | " | " | 3 | " | " |
| " February " | " | " | " | " | 2 | " | " |
| " March "    | " | " | " | " | 1 | " | " |

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order the discount may be deducted from the whole order, including these items which are otherwise excepted.

### CHANGES IN SUPPLIES FOR THE SEASON OF 1908-'9.

In addition to the changes in our honey-extractors already announced, with the increase in price made necessary by the improvements, we desire to call attention to some further changes in styles and prices.

On another page we show an improved shipping-case with sliding cover and corrugated paper in bottom in place of drip-sticks. In connection with these improvements we propose to make the width of our cases for  $\frac{1}{4}$  sections just right for the standard  $\frac{1}{8}$  beeway section instead of making them, as heretofore, wide enough for a 2-inch section. The great bulk of beeway sections used are  $\frac{1}{8}$  wide, and the standard case should fit that section. Those desiring cases for other widths should have them cut to order. For 24 sections,  $\frac{1}{4} \times 1\frac{1}{8}$ , the case will be  $11\frac{1}{8}$  inches, row; for 24 sections,  $\frac{1}{4} \times 1\frac{1}{8}$ , or 20 sections  $\frac{1}{4} \times 1\frac{1}{8}$ , the case will be  $9\frac{1}{8}$  inches, 4-row. The 12 and 10 inch 2-row cases will be likewise reduced to  $11\frac{1}{8}$  and  $9\frac{1}{8}$ . The slide-cover cases with corrugated packers for bottom will be one cent each more than the regular old-style case for the present. Eventually we hope to have but the one style at regular price.

There has been a growing demand for a hive-bottom  $\frac{3}{8}$  inch thick instead of  $\frac{1}{2}$ , and we plan to make the  $\frac{3}{8}$ -inch the standard for the coming season. Until stock in dealers' hands has been disposed of, orders may be filled with either style unless the one ordering states a preference with his order.



There have been so few calls for the double-air-spaced paper-covered cover that we expect to drop it out of the list. This is a most excellent cover, but it is a lot of work to put it together properly. Even if not listed, most dealers will be able to furnish those who prefer it from stock on hand. The price of brood-frames will be advanced a little. Hoffman frames will be \$2.90 per 100; thick-top staple-spaced frames, \$2.70 per 100; metal-spaced frames, \$3.40 per 100; Danzenbaker frames, \$2.70 per 100; shallow Danzenbaker frames, \$2.50 per 100.

We do not change the single and five rate on hives and parts of hives; but larger quantities will be advanced over the rates formerly made, making a smaller difference in price between 5 and 10 and between 10 and 25.

Enamel cloth is advanced to 30 cts. per yard; \$3.00 per piece of 12 yards.

Observation hives, nailed and varnished, will be increased in price to \$9.00 for 8-frame complete; \$8.50 without frames; supers complete, \$3.25; hive without super, \$6.00. Brood-chamber complete, \$4.50; the same without frames, \$4.00. We are making an improved style of one-frame observation hive with movable side panel, similar to the large size. Price, without super, \$3.00; with super, \$3.50. We find by our factory-cost system that, having spared no pains or expense in getting these first class in every respect, we have been selling them less than cost; therefore we are obliged to advance prices as noted.

## Special Notices by A. I. Root

Has your town settled the "wet and dry" question?

THE WRIGHT BROTHERS AND THEIR FLYING-MACHINE, NOT ONLY "OUT IN THE OPEN" BUT "UP IN THE AIR."

While your eyes rest on these words the probabilities are that the Wright Brothers will be "up in the air," both in Europe and America. For the first time they permit photographs to be taken of the entire machine. We have space just now to quote only the following (in regard to Wilbur Wright in France) from the *Chicago Daily News*:

"On a carpenter's table in the shed are vases of fading flowers brought by women admirers from gardens near the sea. There, several unopened bottles of dry champagne share space with copper wire, a lathe, wrenches, a roll of canvas. All will be used by the champagne, for Wright, who does no stroke of work on Sunday, touches neather alcohol nor tobacco."

May God grant that no untoward accident may happen to these two intrepid brothers who not only have the eyes of the *mechanical* world directed toward them, but who are setting such a good example in the way of *morals* before the young inventors of the world, as is indicated by the above newspaper clipping. See the daily paper and magazines for an account of their doings.

### "MIRACLE" WHEAT.

Since page 1016 of this issue was printed we see that the *Saturday Evening Post*, of Philadelphia, in its issue for August 15, has given a full page, with stunning illustrations, in regard to this wonderful wheat. The *Ohio Farmer*, in commenting on it, says, "No one but a fool or a swindler will announce a new kind of wheat guaranteed to produce 200 bushels to the acre under average conditions." The *Farm and Fireside* and other agricultural periodicals are turning in to show up this gigantic swindle. Meanwhile the public would like to know whether the *Evening Post* (and other periodicals that have been giving countenance to such schemes) is a "fool" or in the "swindling" business.

Still later—To-day, August 29, just as we go to press we find that a representative of the *Spokane Review*, of Spokane, Washington, has hunted up this celebrated man, Abraham Adams, of Juliette; and while they could get nothing very definite from Mr. Adams himself, the men who thrashed his wheat gave figures to the effect that his yield was about 20 bushels to the acre. How does that sound, compared with 222 bushels, and the other statements in the *Manatee River Journal*, the *Saturday Evening Post*, and *Judicious Advertising*.

### RATS AND MICE—A LITTLE MORE ABOUT THEM.

On reading over the matter on page 1018 I notice I have not yet considered a hopper feeder for small chickens that will keep out rats and mice. In fact, so far as I can see, it is a hard question to solve. The small chickens can not get into the cans I have described, and just now I do not see how we can arrange any sort of apparatus that will admit small chickens and yet keep out rats and mice. When we come right down to it, there should be no rats and mice in the neighborhood. There are none in our neighborhood at the present time; but I am expecting every day to find them around. Quite small chickens will soon learn to go upstairs in that little poultry-house; and this arrangement heads off the sparrows and as yet offers some discouragement to rats and mice, but probably not very long. As I have said before

several times, if you persistently fight rats and mice, and keep right at it day after day and week after week, they will very soon decide, evidently, that yours is an unhealthy locality for rodents. If any of our readers can explain to me how a hopper feeder can be arranged for small chickens, and yet be mouse and rat proof, I should be glad to be informed.

## KIND WORDS.

The A. I. Root Co., Medina, Ohio—Gentlemen:—

I received of you to day ten queens in fine order. Only one dead bee in all the cages. The queens are fine-looking ones. Thanks for promptness. F. GREINER.

Naples, N. Y., Aug. 18.

The shipment of nuclei arrived in good condition. I transferred them at 4 A.M. on Thursday, and by sunrise they began to get busy. I am greatly pleased, as I find they are beautiful and gentle, and they are certainly good workers. In short, it is just what I wanted. FRANK ZIEGLER.

Rochester, N. Y., May 24.

We received the five queens in fine condition, with no dead or feeble bees in the lot. Many thanks. C. C. THOMAS.

Riverside, Cal., Aug. 15.

The forty queens were all received in fine condition, and, so far as I have noticed, all have turned out well with the exception of one, which turned out to be a drone-layer. I lost but one of the forty queens in introducing. PETER RIESTER.

Auburn, N. Y., July 10.

The five frames I received last week arrived in fine order, and are working finely. They are the gentlest bees I have ever handled, and I do not need any smoker or veil with them. Thanks for your prompt shipment. C. F. CARPENTER.

Bay St. Louis, Miss.

The queen arrived all right in fine order. Many thanks for your prompt shipment. MRS. W. H. SARVEY.

Clarion, Pa., May 11, 1908.

The red-clover bees which you sent me last August are doing very well. I never saw gentler bees than they are, and they are good workers. I can handle them without any smoke, veil, or gloves. They will not leave the frames. G. M. SEIFERT.

Northampton Heights, Pa., July 7.

The nucleus came promptly in good condition. The queen is all right and is now laying. I was certainly "beat" when I came to handle them. I can roll up my sleeves, and, without a veil, open the hive and take the bees off my hands without getting a sting. I call those pretty tame bees.

Belden, O., Aug. 11.

MERTON E. GRAHAM.

## Convention Notices.

Bee-keepers in Alabama, Florida, Georgia, Mississippi, and Tennessee, also points along the route, who will join the party of a carload to attend the National Convention at Detroit, Mich., Oct. 13—15, will please write us for rates, etc. This promises to be the best convention yet, and is to your interest to attend. WM. S. MCKNIGHT.

Elamville, Ala.

The annual meeting of the Kansas State Bee-keepers' Association will be held at Hutchinson, Sept. 16, 10. The first session will be held at 2:30 on the 16th. This meeting occurs during the State fair, and it is hoped that a large number of bee-keepers will be present. Several noted bee-keepers from different parts of the country have promised to attend.

Topeka, Kan.

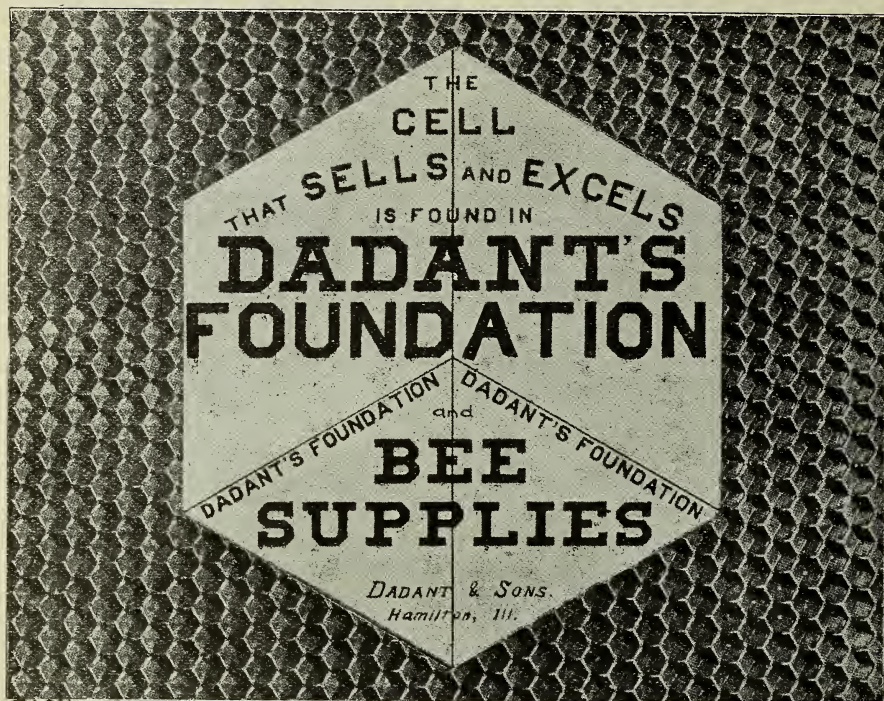
O. A. KEENE, Sec.

HAS DEALT WITH ONE HONEY FIRM FOR OVER 30 YEARS.

It is not often that we put in a free ad. for any honey-dealer; but the firm of R. A. Burnett & Co., of Chicago, has left such a good record that we think we are safe in publishing a letter that was sent to that firm recently, especially as the writer puts himself entirely in the hands of the firm to do the best thing possible for him. The letter is as follows.—ED.]

R. A. Burnett & Co.—I have this day sent to you by freight 58 cases of extracted white-clover honey, 120 lbs. of honey net in each case. Please close out the honey as soon as possible, as I am in need of the money. Your firm has handled my money for over 30 years. F. W. HOLMES.

Coopersville, Mich., July 25.



# FOR OVER 25 YEARS

our make of goods has been acknowledged to be in the lead as regards  
WORKMANSHIP and MATERIAL.

**Our AIR-SPACED HIVE is a most excellent winter hive,**

and fully as good and convenient for summer management as the  
single-walled. Same inside dimensions as regular Dovetailed hives; all  
inside material interchangeable with Dovetailed hives.

**We manufacture full line of BEE-KEEPERS' SUPPLIES.**

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|----------------|--------------------|-------------------|-------------------|
| FALL AND WIN-  | Sept., 7 per cent. | Nov., 5 per cent. | Jan., 3 per cent. |
| TER DISCOUNTS: | Oct., 6 per cent.  | Dec., 4 per cent. | Feb., 2 per cent. |
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Catalog free.

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"The  
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With A  
Reputation"



With water  
fronts if  
wanted for  
pressure  
or other  
boilers.

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BAKER**

**FUEL  
SAVER**

All top doors and frames made of  
malleable iron. Can't break or crack.

You don't buy a range every year. Therefore when you buy one, buy the best. At first the Great Majestic may cost you a very little more than an ordinary range, but in the end it is *much cheaper*. It has *durability* and will out-last three ordinary ranges. It is scientifically built—no heat can escape or cold air enter—will save half on your fuel bill. A perfect baker—not one day good—next day poor—but always uniform. Will save you from disappointment and poorly cooked meals. Your Best Guarantee: 1st—The reputation of the plant behind the range. 2d—Hundreds of thousands in use every one giving satisfaction. We want you to see *The Great Majestic*. If no dealer near you has it, write us—we will send you free our booklet "Range Comparisons," and tell you where you can see a Majestic—the range that gives satisfaction and out-lasts all others.

**THE MAJESTIC MFG. CO., St. Louis, Mo.**

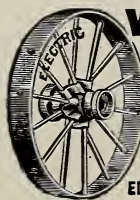
*The Great Majestic Is For Sale In Nearly Every County In Forty States*

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**THE BEST LIGHT CO.**  
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It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It's free.

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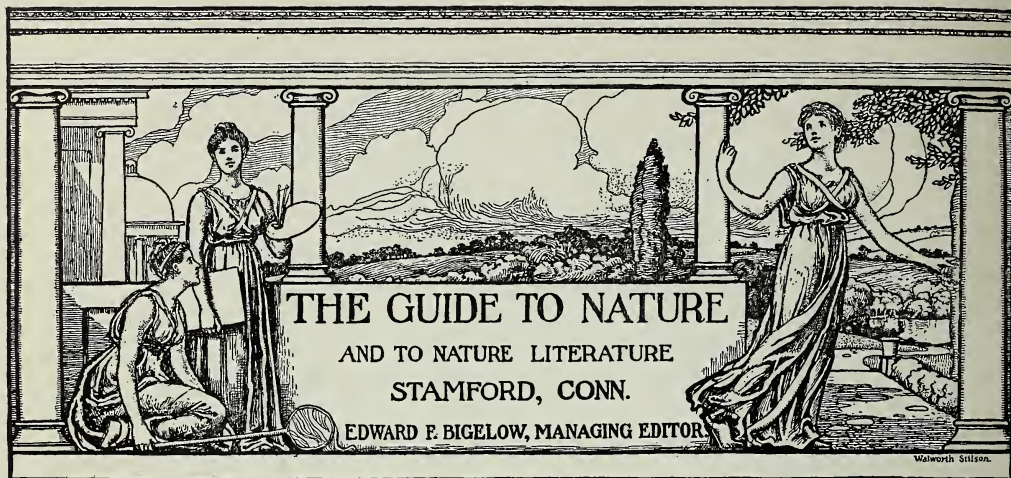
## SPRAY PUMPS

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# Four Great Special Numbers

SEPTEMBER, OCTOBER, NOVEMBER, and DECEMBER, 1908

**A second great enlargement and improvement.** With the June issue *The Guide to Nature* commenced its second era (of three months) with so many improvements as to surprise delightfully every patron. Beginning with the September number there is another decided advance, and the numbers for September, October, November, and December will eclipse all previous efforts in value and interest to readers.

There is to be a new and beautiful cover, and many other mechanical improvements. We have in hand and there are promised a large number of interesting articles and expressive photographs. Several new features which we are not yet free to announce are in preparation. The September number will surprise and delight.

It has taken a few months to "find ourselves." But we can tolerate the delay in the satisfaction that we are doing the "finding." It takes a little time to get under full headway. By the September issue we shall have had that time.

The magazine just as it is in June, July, and August is of higher grade than any other nature magazine ever published. It fits the present increasing interest. We have full confidence that those who know the magazine agree with that statement.

Neither the Prospectus nor any form of announcement can fully portray the merits of the magazine. We ask a fair trial and your hearty co-operation. Let the magazine speak for itself, and let us have the benefit of your suggestions and criticisms.

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